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ORIGINAL DEPARTMENT.

COMMUNICATIONS.

THE DISPOSAL OF SEWAGE AND THE PROTECTION OF STREAMS USED AS SOURCES OF WATER SUPPLY.

BY GEORGE E. WARING, JR.,

Of Newport, R. I.

(Concluded from page 329.)

Around the whole interior of the tank, near its top, there is a perforated brass pipe connected with the main water supply by a float-cock at the bottom of the tank. This sends a spray over the walls of the tank during about an hour, partly before the discharge is complete, and partly during the earlier filling of the tank. Its purpose is to wash down accumulations of slime which might in hot weather become offensive. This part of the apparatus is to be removed during the winter season.

The irrigation field proper is about 1,000 feet distant, and its upper side is twenty-seven and one-half feet lower than the outlet of the flush-tank. This field is separated from the hospital grounds by a public road and by Stony Creek. Its lowest side is nearest to the grounds, and its higher or further side is bounded by a mill-race a little above its highest level. The area of the field available for irrigation is about twelve acres. Lying to the north of it is a piece of waste land two or three acres in extent, which has been arranged for use as a relief area in emergencies. Along the upper side of the irrigation field bordering the mill-race, is a deep trench with sloping grassed sides, and with a planked water-way at the

bottom, for catching and carrying away the infiltration or overflow of the mill-race. Immediately inside of this ditch is the main sewage carrier, which extends from one end of the field to the other, and has a fall of 1 to 600 from its highest point, which is in midway of the field. At this highest point there is a circular well, six feet in diameter and seven feet deep, measuring from the top of its wall, which is a little higher than the surface of the ground. The eight-inch discharge pipe delivers into the bottom of this well, which thus serves to check the velocity due to the rapid fall of the connecting sewer. At its top there are three semi-circular openings two feet wide and one foot deep. One opens into the north carrier and one into the south. The third opens into another carrier, which leads directly toward the middle of the field. Ordinarily, only one of these openings is used at a time, and one is sufficient to deliver the whole flow. The north and south carriers, the banks of which are lower toward the field than toward the mill-race, overflow with much uniformity, and deliver the sewage at the top of a well-graded inclined surface over which it runs until absorbed. In no case does the sewage run quite the whole distance across the field. Movable gates being set at one point or another, the whole tankful of sewage may be delivered at pleasure over any area of from two to four acres, according to the inclination of the surface, and its condition of saturation by rain, or its dryness.

The carrier which runs toward the centre of the field delivers into a level ditch which surrounds a level tract about 2 acres in area. This is crossed by a series of parallel ditches 3 feet wide and 2 feet deep, separated by

beds or banks 8 feet wide. These beds are to be used for the cultivation of vegetables, forage, osiers, or whatever may be thought most advantageous. They receive their sewage solely by lateral absorption.

This level tract constitutes a relief bed capable of receiving several tankfuls of sewage in succession, and resembling somewhat the "intermittent filtration" beds used in England.

The whole of the field outside of the level tract is now sowed with rye and grass, and is already well covered. It is intended to use it as grass land only, and with the relief that can at all times be afforded by the level tract, by the emergency field to the north, and by the truck-patch, it need never be overflowed, and the sewage may at any time be kept off from any part of it long enough for harvesting. Judging from the experience of similar fields in England, it will be necessary to crop it three or four times during the season.

A considerable element of the cost of the work was due to the very unfavorable character of the ground, which, like that of the whole neighborhood, is a very heavy, stony, argillaceous deposit, underlaid by a stratified limestone, sometimes at a depth of 2 feet or more, sometimes lower than it was necessary to excavate. A sort of swale ran through the field from end to end, the land being higher at the bank of the creek than here. It was crossed with ditches, largely occupied by a tussock swamp due to a heavy underlying stratum of clay, and its old fence rows and ditch rows were overgrown with willows and other trees.

The cost of the preparation of the land was not less than \$8,000, including underdraining, grading, uprooting trees, etc.; that is to say, it cost this amount to put it into the condition of a reasonably well graded, cleared, and naturally well-drained field. That part of the cost would be avoided where land of proper character is available.

One item of the preparation consisted in the laying of over 20,000 feet of draining tile at a depth of from 5 to 8 feet, more than half of which required rock cutting from a few inches to 2 feet in depth. It should be said that the rock is so fractured that water easily finds its way down to the level of the tiles. The underdrains are generally 25 feet apart.

The surplus water of the soil was substantially all removed by the digging of the ditches, so that when the tiles had been laid and covered, during dry weather, they discharged a very small stream. It took a long time to get the stony filling of the under-

draining ditches so compacted and solidified as to prevent the direct flow of water from the surface to the tiles. Even now, there are some voids which have not been detected and filled, and some water flows directly from the surface to the tiles during the application of sewage. It soon ceases, and the effluent is clear within half an hour after the tank ceases discharging. In a short time this difficulty will be corrected, and it will always be clear.

The above is a brief and rough description of the general arrangement of the work. Its operation, so far as observed, may be thus explained:

All of the water-closets in the wards are flushed out at intervals of four or five minutes with a copious discharge from automatic tanks. This flow runs directly to the new sewers, and is sufficient in amount to maintain, day and night, a constant cleansing flow. The water-closets in the administration buildings and officers' quarters are operated by hand. They are all in direct communication with the same sewers. So, also, are the urinals (automatically flushed) and the wash-sinks and baths of the whole establishment; also, the sinks in the various dining halls. Such of these as are not to be abandoned on the completion of the new refectory buildings have been provided with flush-pots, by which their wastes are held back until accumulated to the amount of six or seven gallons, and then they go forward, with a rush and in mass, to the sewers.

The whole series of kitchen sinks are connected with a similar apparatus, by which, as above stated, from fifty to one hundred gallons at a time are discharged into the sewers through a four-inch outlet. The laundry apparatus from time to time contributes its very copious flood to the volume of the sewage.

Probably, in no case does more than fifteen minutes elapse between the emptying of any vessel in the establishment and the arrival of its discharge at the flush-tank. Within certainly less than twelve hours, and often less than eight hours, the tank, becoming full, discharges the whole accumulation into the main outlet-sewer leading to the irrigation field. The stream, running out through one or other of the carriers leading from the well, overflows its banks and spreads over the land. This complete process may take two and a half hours, so that if we add together the extreme limits of time, we have less than fifteen hours between the discarding of waste matter and its application to the surface of the irrigation field.

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It is safe to say that putrefaction exists nowhere, at any time, throughout the whole system, and there is never at any point the least suggestion of the putrid odor inseparable from common sewers and cesspools. The only element of the mass which, in its fresh condition, is malodorous, is the fecal matter; as this is distributed through and drowned by not less than 2,000 times its volume of water, it counts for nothing as a source of exhalation. The whole flow might be discharged on the lawn in front of the administration building without offence save to the eye.

A few small coprolites withstand the rough usage of the current and are carried on to the ground, but they are so few and so very far between as not to be noticeable. Whatever solid matter passing through the screen is lodged on the surface of the field is destroyed by natural processes everywhere active. In no case is the amount of such matter or the effect from it worth noticing.

The real filth of the sewage—its dissolved and finely divided suspended matters—is carried into the ground, is retained there, and is destroyed by oxidation, and, through the activity of bacteria, by nitrification. As filth, it cannot pass through the soil nor very far into it. If the products of its resolution are not consumed by plants, they pass off with the under-drainage, as soluble salts devoid of all organic character and unaccompanied by the lower forms of organic life.

After a few days' use of a single tract, the sewage is turned to another tract, and again to another and another, being allowed nowhere to run long enough for the closing of the ground against infiltration by clogging, or for the gorging of its interior spaces with impurities. In short, the process of purification is complete and continuous. Experience elsewhere indicates that the soil will in time improve in its purifying power from year to year for a long time.

There are larger examples of the purification of sewage by irrigation elsewhere in the world, and examples of which the lesson is enforced by long experience; there is, so far as I know, no example in existence more carefully arranged as to its details, involving the overcoming of greater natural difficulties, or better illustrating the more modern technical methods of the art.

I may be excused for suggesting that this example, so near to your own doors, points out the way in which the sewage of the towns now draining into your own water supply may practically, and without too great cost, withhold their filth from their

drainage, making the Schuylkill once again a fit source from which to draw household water.

Another method of disposal by application to the land which is especially applicable to isolated houses, and to establishments when the discharge cannot be removed and must be concealed, is what is known as "sub-surface irrigation," a process invented by the Rev. Henry Moule, for use in connection with the earth-closet, and first applied systematically by Rogers Field, Esq., an English engineer, in connection with the drainage of some cottages at Shenfield, in Essex. Its use in England has never extended very much.

In this country its first application was in connection with my own house at Newport, in 1869. After ample experience and observation of its efficiency, I began to use it in my private practice as an engineer, in disposing of the sewage of isolated houses. In 1876 I had become so confident of its success that I applied it to the sewage of the whole village of Lenox, Mass. In 1879 it was applied on a still larger scale at the Woman's Prison, at Sherburne, Mass., and in 1881 to the hotel at Bryn Mawr. The details of this system have been very materially perfected, and its use is now common in many parts of the country, there being hundreds of examples in New England, and probably as many within a radius of ten miles about Orange, N. J. The Lenox work being the oldest of the larger ones and the one longest in use, may be taken as an illustration of the system generally.

Lenox was a scattering village with less than 1,000 persons living in reach of the sewers. The fund available for sewage was small, not enough to lay an outlet-sewer to the river, over two miles distant, to say nothing about work in the town. Indeed, a discharge into the river would not long have been tolerated. At that time (1876) much less was known than now as to the efficiency of sewage irrigation. As the most promising means for overcoming the difficulty, I decided on the adoption of sub-surface irrigation, using 10,000 feet of distribution pipes, underlying a well-graded area of about one and a half acres. The pipes were laid a little more than one foot below the surface. They were common 2-inch agricultural sole tiles, laid directly on the earth. They were divided into 20 lines, with as many connections with the main pipe leading from the flush-tank. The manner of connection was never very satisfactory, and the general arrangement was never entirely suc-

cessful from the point of view of an expert. However, although the field was but a few hundred feet distant from the village, there was never any serious complaint from it, and there was generally great satisfaction with it, although, as the flushtank had no settling basin for holding back solids—only a strainer—there was always more or less trouble from obstructions, and, as the population increased, these obstructions increased, until now the whole affair is in such condition that it seems necessary to reconstruct parts of the work in accordance with methods since universally adopted. At the same time, with all its drawbacks, it has been essentially successful and satisfactory, no nuisance having arisen from it that was perceptible at any distance from the field, and no attention having been called to it by reason of its condition. It has been quoted and visited, as an instance of a great advance in the disposal of the sewage of a village, and it only needs slight improvements to make it available for perfect work for years to come, provision being made for distribution over the surface of the field, at times, during the short period when the village is full of visitors.

At the Woman's Prison the system was much more correctly constructed and has been correspondingly more successful, though it is seriously overtaxed with an effluent of about 30,000 gallons per day; the more especially as the contributing pipes lie in a bed of muck and heavy silt, one of the least successful materials for this use.

At the Bryn Mawr Hotel the same system has always worked satisfactorily since it has been sufficiently extended to deal with the large volume of sewage; but, mechanically considered, this is not a test case, for all of the sewage is received and retained in large cesspools, the absorption drains taking care only of the putrid liquid discharged from them.

After large experience with this method of distribution, I should not hesitate to use it for a community of any size, if it were a mere question of mechanical arrangement and of purification. I should hesitate to use it except where the distribution ground is in the immediate vicinity of houses, simply because it is much more costly and much less simple than a discharge over the surface, which, as has been amply proven before and is amply proven now at Norristown, answers every requirement of simplicity, safety, and decency.

I cannot better close this paper than with extracts from a report made on the 25th day

of July, 1885, to the Chamber of Deputies of France by M. Bourneville, a deputy, submitted in the name of the committee appointed to examine the proposed law having for its object the agricultural utilization of the sewage of Paris and the purification of the Seine.

I adhere as closely as possible to the original text, thinking that, as former statements about this work have been disputed, a close translation is more important than a freer rendering in English. M. Bourneville says:

"The vast experiment at Gennevilliers comes in its turn to confirm the great laws of natural purification and agricultural restitution, attested by the numerous examples that we have collated.

"It was in May, 1869, that is sixteen years ago, that the sewage first reached the land of the plain of Gennevilliers. There had already been for two years (1867 to 1869) several thousand cubic metres distributed by irrigation or treated by chemical reagents at Clichy on an experimental field, where the pumps now stand; a certain number of vegetable products had been obtained on about two-thirds of an acre. The experiment transported to the other side of the Seine, at the beginning of the plain of Gennevilliers, began in 1869 on six hectares (fifteen acres) bought by the city of Paris and retroceded by it to several well-disposed cultivators. The disasters of the war came and destroyed the first installations; they were put into condition again at the commencement of 1872, and since then the service has been regularly performed. On the 3d of June your commission visited in detail the pumping station of the city of Paris and the plain of Gennevilliers. We have gathered together, on the ground and in the documents placed at our disposal, the most circumstantial information on the results obtained."

The report then describes the character and arrangement of the pumps, connecting pipes, distribution pipes, etc., and continues:

"The volume of sewage sent into the plain of Gennevilliers, which was only 1,765,621 cubic meters in 1876, was 15,000,000 in 1880, and finally 22,493,992 cubic metres in 1884. From 1872 to 1885 there have been spread on the plain of Gennevilliers 157,000,000 cubic metres.

"The irrigated surface has undergone a corresponding development. Beginning with 57 hectares in 1872, it reached 121 hectares in 1874, 200 hectares in 1875, 450 hectares in 1880, and finally 616 hectares on the 1st of January, 1885. The sewage is

distributed over the tracts by about twenty laborers, each of whom is charged with the supply of from 25 to 30 hectares, and with the management of about 30 outlets. In view of the extreme division of property and the diversity of culture, the volume of sewage delivered into the plain is distributed so uniformly as to require no reservoir and no 'regulator;' simple standpipes placed near the steam pumps and at different points along the pipes regulate the pressure.

"During the season of active vegetation, the cultivators are present on the fields during nearly the whole day to the number of about 1500 men, women, and children; they lead the water into the ditches from the distribution outlets with a care and a skill which would leave nothing to be desired in the best irrigations of the south of France. During the three or four months of winter, vegetation is only partial; the laborers then interfere more directly; they cause the sewage to flow in the gutters and trenches in such a way as to insure purification by oxidizing action; the solid portions remain in the gutters and form a paste which the peasants afterward incorporate with the earth in the first plowing of spring. This is the case especially for cereals; the vegetable products utilize the winter deposits in the form of a top-dressing of the beds.

"At Paris, as at Berlin, this formation of the deposits and the irrigation continue during the greatest cold, sewage water having always a temperature of at least 5° or 6° (40° to 44° Fahr.). This was realized in the severe winter of 1879, and during the three weeks of continuous frost of last winter. During great floods of the Seine the pumps are generally stopped, leaving to its flow the removal of the entire discharge of the main sewers."

Then follows a table, showing that in 1884 the volume of sewage used in irrigating, per month, varied from 1,205,358 cubic metres in February, to 2,766,782 metres in July. The monthly average for the year was 1,874,491 cubic metres.

"At the time of the visit of your Committee, the volume delivered to the cultivators each day reached from 130,000 to 140,000 cubic metres for every twenty-four hours. More than one-half of the sewage of Paris was purified and utilized by the plain or Gennevilliers during the heated term and during low water of the Seine—that is to say, at the time when the discharge of sewage into the Seine is specially objectionable.

"The results obtained in the plain, from the point of view of cultivation, are most re-

markable. Your commission traversed, during more than two hours, fields covered with products of the greatest variety and abundance; vegetables of all sorts, cereals, grass, and nurseries.

"They obtain generally 20,000 to 40,000 heads of cabbage per hectare, 60,000 heads of artichokes, 10,000 kilogrammes (over 100 tons) of feeding beets, and five or six cuts, yielding from 80 to 100 tons of green forage. The gross product obtained per hectare varies from 3,000 to 10,000 francs (\$600 to \$2,000) and even more for crops.

"It has been said, in the presence of the Commission, that the horticultural products of Gennevilliers were of bad quality. It has been written that *the vegetables produced by this soil, surcharged with infected water, are bad to the taste, and the forage offered to live stock is not nutritive, and is, besides, rejected by them.* On this point here is the opinion formulated in a special report to the Agricultural Society of France by Mr. Michelin."

Then follows a table showing that the 616 hectares were occupied for the growth of cabbage, artichokes, potatoes, asparagus, salads of various sorts, peas, carrots, beans, parsley, onions, beets, luzerne, grass, sundry vegetables, nursery stock, trees, and serials. Mr. Michelin says:

The Society has, through its committees, always observed the results obtained in the horticultural experiments which have shed light on this question, which we in the horticultural world of Paris regard as solved from the practical point of view, with reference to the beauty of the products, their quality as to taste, the success of the production, and the certainty of sale. In affirming the quality of the vegetables to be proper for the nutrition of men as well as of animals, it should be explained that the liquid ought not to be put in contact with those parts of the plant which are above ground, but only with their roots."

The Committee asserts that "all the vegetables of Gennevilliers are advantageously sold in the *Halles*, as well as in the markets of the environs. They carry off the first prizes at the horticultural exhibitions of Paris, and even of Seine-et-Oise." About 800 cows are fed with the aid of the irrigated grass and plants. The average dose of sewage used by a hectare, divided over the whole surface dedicated to irrigation, is about 40,000 cubic metres a year. It is really, if we include what is not used directly, about 50,000 cubic metres. Certain parcels, specially treated, under an arrangement with the cultivators and by way of experiment,

with high doses, have been receiving for three years 80,000 cubic metres by regular irrigation summer and winter. They are covered with a luxuriant vegetation.*

"The rental value of land, which was formerly from 90 to 150 francs a hectare, (\$7.20 to \$12 per acre)—we speak, of course, of the cultivated land—is now from 450 to 500 francs (\$36 to \$40 per acre) in all the irrigated area. As to the selling value, it is from 10,000 to 12,000 francs (\$800 to \$960 per acre). All leases now accepted by the cultivators carry the provision that the high rent is not consented to, except on the condition of sewage being disposable for the leased land.

"The commune of Gennevilliers asked and obtained, by the treaty of 1881, that for a period of twelve years the sewage should remain at the disposition of its inhabitants as freely as they should desire, whatever might be the projects and works of the city of Paris for the extension of irrigation (elsewhere).

"Irrigation with sewage has, therefore, brought wealth to Gennevilliers. Notwithstanding the evidence of these results, there is among the adversaries of the present project one who maintains that this wealth is an illusion, and that in reality the irrigation has caused to Gennevilliers an irreparable wrong, because no one seeks this locality for the construction of villas. The answer is simple; we take it from Mr. Francisque Sarcey: 'The population, which was not dense,' says he, 'cultivated more or less well a rebellious soil. They had only to scratch the ground to meet the sterile sand and the arid gravel. A few country houses had pushed in here and there around Gennevilliers itself; but it was by exception, for the emigration of the Parisian Bourgeoisie in search of villas passed to one side and pushed generally further on. Those who had stopped there could have been seduced only by the cheapness of the land. It seemed that this country, struck with a sort of malediction, was never to lift itself from this condition, when, in 1869, the sewer commission of Paris selected it as the theatre of an experiment which was to produce a happy change in its appearance.'

"The purity of the subsoil water, which receives all of the water filtering from the irrigated land, is perfect. M. Pasteur has testified to this with his high authority before the committee.

"All may judge of this, as your committee

has done, by the examination and the tasting of the water that flows out of the five lines of drains 18 inches in diameter which surround the village of Gennevilliers, and discharge into the Seine about one kilometre from each other. These drains, having a total length of about eight kilometres (five miles) have been established at a depth of four metres (12 feet) at the normal level to which it was desired to reduce the subsoil water; in the case of floods, or of very heavy irrigation, these drains facilitate the outflow of the water and prevent the invasion of quarries and cellars.

"As M. Marie-Davy, Director of the Observatory of Montsouris, testified before the committee, the water of the drains is chemically pure. It contains barely 0.001 of a gramme of organic nitrogen to the cubic metre even at those points, as in the experimental basins of the gardens belonging to the city of Paris, where the annual or continuous dose reaches and passes 80,000 cubic metres per annum. With Liebig's bouillon which shows 62 micro-germs in a cubic centimetre of water of the Vanne, 1410 for the Seine at Bercy, and 20,000 for the sewage, there are found only a dozen inoffensive micro-germs in the water of the drains, which thus sustains the opinion of M. Pasteur. At the same time, the large contents of chlorine, 0.07 of a gramme per litre, indicates the presence in the subsoil water of a large proportion of purified sewage which has passed through the ground.

"The sanitary condition of the commune of Gennevilliers leaves nothing to be desired; the Mayor and his Adjuncts, Doctors Thobois and Cornilleau, testified before the committee at its visit to Gennevilliers, and it is enough to walk about in the plain and see the vigor and good health of the hundreds of men, women, and children who are working eagerly (*avec ardeur*) in the midst of the irrigated fields, to understand the true state of the case. The *general mortality* in 1865 was 32 per 1,000. In 1876 and 1881 it was only 25 and 22. No epidemic of typhoid fever has existed for long years, although the irrigations were continued on a large scale during the cruel epidemic which attacked Paris in 1882. Not a single case of cholera occurred in 1884. Never from 1869 to this day, although the inhabitants eat their own vegetables, even uncooked, has there been observed a single case of *anthrax* or *septicemia*. In fact, all of the information that we have gathered from most of the physicians who have had occasion to be called to Gennevilliers proves that intermit-

* At this rate, one acre would purify the sewage of over 500 persons, at 40 gallons per day.

tent fever shows itself very rarely, and that the number of cases does not exceed that of localities more or less remote, and of which the fields are not subjected to irrigation.

Still another argument pleads in favor of the excellent sanitary condition of Gennevilliers, that is, the increasing growth of population, as shown by the following table:

1st of January, 1869 . . .	2186 inhabitants.
" " 1872 . . .	2218 "
" " 1880 . . .	2389 "
" " 1885 . . .	3245 "

"Such are the facts that your committee has established in the plain of Gennevilliers; it has been constantly accompanied by the authorized representatives of the population of the plain and its suburbs: MM. Pommier, Mayor, and Retrou, Adjunct, of Gennevilliers, Berthou, Mayor of Saint Ouen, Hennape, Mayor of Puteaux, our friend M. Bailly, Mayor of Courbevoie, Honorary Inspector-General of Public Assistance. A deputation of the cultivators of the plain gave the committee all the information as to details that it needed. No discordance was developed; the unanimity was complete concerning the excellence of the results obtained and the absolute innocuity of the system. The majority of your commission cannot refrain from expressing to you the confidence that these demonstrations give it in proposing to you the continuation and extension of sewage irrigation."

The publication of this report must have been most gratifying to M. Durand-Claye, the champion and the wise and eager director of the work at Gennevilliers, who has fought its battles against prejudice, ignorance, and malice, from the days of its struggling infancy to this hour of its complete triumph, and his own.

At Gennevilliers, as at Croyden, Berlin, Dantzic, Breslau, and the Norristown Asylum, complete evidence is set before us of the absolute efficiency of the system of purification by application to the soil, which, it seems to me, on the score of economy and of completeness, as well as by reason of the conditions generally prevailing in this country, has such advantages over the best of the chemical systems that it is, in at least a very large majority of cases, better suited to our needs.

Nor can it be doubted that this system will enable us to restore and to maintain the purity of our water-courses, especially when these are used as the source of water for domestic use.

A CASE OF INTUSSUSCEPTION—RECOVERY.

BY H. G. CLIPPINGER, M. D.,

Of Pipestone, Michigan.

January 14, 1886, I was summoned to see Miss B., aged 10 years, living four miles out in the country; the messenger stating she had a bad diarrhoea, and was vomiting nearly all the time. Being busy, I sent some powders of sulph. morph., bis. subnit., and cretæ prep. arom., with directions and orders to report if it failed to control the trouble.

January 21. I was summoned again, the messenger stating the powders cured her before, but this time her sickness was different. I found the child with an expression of great suffering, saying her "belly ached so bad." Her temperature was 100°, tongue dry and red, pulse 99, abdomen distended and tender, and vomiting whenever she swallowed anything, and sometimes when quiet; bowels constipated. I could not detect a hernia. They gave her castor oil and some pills the evening before and during the night. I gave calomel, grs. vii., sodæ bicarb., grs. vii., dose to be repeated every three hours, and injections of soap-suds until bowels moved, and left opiates to quiet pain afterwards. Ten hours later symptoms worse. The nurse thought her bowels moved sufficiently. I was satisfied they only moved below the obstruction. Temperature 101°, pulse 110, abdomen tense and painful, irritability of stomach no better. I tried other purgatives per mouth and rectum with no success.

January 22. Symptoms growing worse, and vomiting a little stercoraceous matter. Used opiates hypodermically to quiet pain.

January 23. Growing weaker. I now renewed the calomel and soda, as it was about the only thing the stomach could not dislodge. I could not see her until the morning of January 24, when her expression and tongue looked a little better. Temperature 101°; pulse 120. Abdomen very much distended, with paroxysmal pain of a severe griping nature and constant tenderness. I continued treatment of previous day. In the evening countenance and tongue improved in appearance. Temperature 100°. Had three small passages of mucus from bowels during the afternoon, and a little gas escaped just before I entered the room. At 10 p. m. she had a small rectal passage in a fluid condition. These kept up from every half to one hour for three days. I stopped all purgative agents, and placed the patient upon powders of morph. sulph., bis. subnit. et cretæ prep. arom., with stimulants. During

the treatment I used emollient and sedative applications to the abdomen. The distention left with the movement of the bowels, but the paroxysmal pain and irritability of stomach remained; the stomach now began to retain a little nourishment for a little while.

January 27. In the morning her stools began to have a putrescent odor, which kept growing more offensive during the day. In the evening, four inches of the intestine passed away. No change in other symptoms.

January 28, at 4 a. m., $3\frac{1}{2}$ inches more of the bowel passed in a partially decomposed state. Stools very offensive. At 10 p. m., a little over seven inches of bowel passed. This section of intestine was in a better state of preservation. After this the offensive odor ceased.

January 29. Found patient better. Stomach less irritable. Alvine evacuations less frequent. A little appetite. Temperature 98° . Pulse very feeble. From this time on the abdominal pain and tenderness gradually subsided, and three weeks later I dismissed the patient in a fair state of health.

There are a few questions I will ask the profession concerning this peculiar case. Did the calomel relieve the congestion of the stricture so as to permit a small amount of fluid to pass before the death of the bowel? And why should the bowel die three days afterward? Why did the intestine pass at different times, in different states of preservation? Would it be the physician's duty to perform laparotomy under the circumstances? Information through your valuable journal will be gladly received.

HOSPITAL REPORTS.

JEFFERSON MEDICAL COLLEGE HOSPITAL.

SERVICE OF DR. ROBERTS BARTHOLOW.

Phthisis Pulmonalis.

The first case that I have to show you to-day, gentlemen, is interesting from the fact that it illustrates the form of phthisis pulmonalis that comes on after and is dependent upon pleuritis. A distinguished New York teacher has called our attention to the fact that there is a form of phthisis that follows pleuritis, that is due to an extension of the inflammation by continuity of tissue from the pleurisy to the tissue of the lung proper, resulting in a chronic inflammation and ul-

timate degeneration of the lung itself. Sir Andrew Clark, in England, who is Gladstone's physician, and is therefore the medical lion of the day in that country, has lately delivered some lectures on this subject, and illustrated his remarks with a large number of cases. There is a condition, so to speak, of chronic pleurisy, with a chronic fibroid condition of the lung, which persists until the bacilli are deposited, when it caseates, breaks up, and cavities are formed. Now this young man offers to us a typical case for observation. Eighteen months ago he was perfectly well. There is no tubercular history on either side. He was at this time seized with pleurisy, after which he had an abscess on the face, the scar from which you see. Now though there is no history of struma or tuberculosis in his family, you will observe that he himself offers the strumous diathesis very well marked. He had, he tells you, two attacks of pleuritis, after which he had cough and expectoration. The pleurisy was bilateral, and now both lungs are affected; please note this fact. I can distinctly elicit the cracked-pot sound, from which fact I know that there is a cavity near the middle of the right lung. There are general moist large and small rales over the whole aspect of both lungs; so that we have all the ordinary rational and physical signs of phthisis, for he is emaciated to the last degree. His temperature is now 101° , but I have no doubt that in the evening it goes up to 102° or 103° . Our experience here for some time past tends to confirm this idea that phthisis does originate from pleuritis, for within the past few weeks we have had several cases just like this one. The treatment, which must be supportive, I will not now dilate upon; you are familiar with it.

Probable Floating Spleen.

We have here a very interesting case for diagnosis. The man presents himself to us to find out what is the matter with him. When we look at him we see that he has a very much enlarged abdomen, but what is the cause? His countenance is good, he is a little pale, but on the whole he seems to be in fairly good condition. For about eighteen months past, he tells us, his abdomen has been progressively enlarging. He has not had much suffering, that is to say, that while he has experienced some uneasiness and discomfort from this swelling, it has never been sufficiently great to force him to resort to anodynes for its relief. Upon percussion, I find the abdomen flat nearly all

over its surface, save in the most prominent part in front, where, no doubt, the resonance I elicit is due to the floating upwards toward the surface of the intestines. Now, I am quite sure that there is fluid in the abdominal cavity, for I can plainly detect fluctuation. When I press my fingers deeply into the abdominal walls, I can feel a hard body, a tumor, between my thumb and finger, low down in the median line, between the symphysis pubis and the umbilicus. It is firm, somewhat sharp in its margins, and when I manipulate it carefully, I find that I can float it upwards, more especially in the direction of the left hypogastrium; therefore I know that this tumor, whatever it may be, is movable. Well, now, we sometimes find that the liver is movable. In all persons it is possessed of some slight mobility. When erect it slightly descends, and when recumbent it ascends again, but there are some few exceptional cases where it has very considerable latitude of motion, the ligaments, common duct and blood-vessels forming a pedicle that is sometimes quite long. So also may we have the kidney movable; indeed, such a condition is comparatively frequent, especially in women who have borne many children. So, too, the spleen is occasionally found free to move. I have examined a case where there was great ascites and a movable spleen, with a pedicle one foot long. Therefore we have three organs that may shift about and give us such a tumor as we have here. We have in the first place to consider that we have, as I have said, a hard body, which may be regarded as a tumor. Well, now, we might have an aneurism in this location, an aneurism of the mesenteric artery, but this tumor is not pulsating, and it is not in close contact with the aorta, else we would have the aortic impulse transmitted. So, then, I think we must narrow down the possibilities to the question of floating liver, spleen, or kidney. If we were to jump at a conclusion from the fact that we can most readily move the tumor up into the left hypogastrium, we would say that it was the spleen. But let us first look for the spleen in its normal position, and ascertain whether it is there wanting. This would seem easy to do, but it is altogether a different question to examine for this body when the abdomen is in its normal condition and when it is enormously distended, as in this case. There is so much fluid here that it would be impossible to accurately determine anything about so small a body as the spleen. Well, let us then look at the liver. Here we encounter the same dif-

ficulty as in the case of the spleen, but if the liver has been pushed up by the accumulation of fluid, we will find an increased area of dullness in the thorax. Now, on percussion I find dullness up near to the apex; so then I am inclined to think that the liver is in its normal position, save that it has been pushed up by the fluid. So now I have to come back to the spleen. Let us look into the shape of the tumor; it rather corresponds in outline to the shape of the liver; it is somewhat sharp in outline, and here I feel a notch, but remember that the spleen varies very much in shape, and we may have notches in that organ. Well, then, with all this doubt surrounding us, what can we do? There is only one thing to do, and that is to remove the fluid. We will tap this man, and when the abdomen has been thus reduced, we will be able to tell all about these organs.

Passage of Gall-Stones.

While we are waiting for the next patient I want to show you some interesting specimens, and say a few words about the passage of gall-stones. You will read in your books of certain symptoms set down as diagnostic of the passage of biliary calculi, and if you always wait for the appearance of such symptoms, you will be, not infrequently, most woefully disappointed. Now this stone which I show you is quite large; you see there is a nucleus of inspissated bile that is coated with crystals of cholesterine, outside of which again you observe a brown coat, which is the phosphate of lime and biliary coloring matter which has become added to it after it passed into the intestine. Well now, in this case, this large calculus was passed without the occurrence of any symptoms. This is a curious fact, that very often no symptoms will attend their passage. There is no colic and none of the usually described derangements. Their manner of discharge, too, is interesting, for it occurs that they ulcerate through into the intestines. But after they get into the intestines they often cause trouble, as happened here. For some time this woman complained of great uneasiness in the region of the cæcum; she had movable pain, shooting from the cæcum to the angle of the colon. The question of treatment became a matter of great doubt. The case occurred in Illinois, and many doctors were called in consultation, none of whom were able to arrive at a definite opinion as to the trouble, nor to formulate appropriate treatment. The only symptom to guide them was the presence of pain,

which might, of course, be due to many causes. Some considered it to be caused by flatulency, and many and diverse were the opinions formulated. Finally, one day, after taking a purgative, she passed this stone with a loud noise as it struck the chamber, which called attention to it, and it was recovered. Immediately thereafter, all symptoms disappeared. She was very fortunate to so get rid of it, for it will happen that such an obstruction will act as a nidus for the accumulation of feces, and we will have intestinal obstruction from this cause. From this case I wish to draw, for your guidance, a very practical point. Remember how obscure may be the passage of biliary calculi, and in all cases where a patient passes small, hard, round feces, save them and break them up or dissolve them, that you may see what they contain.

Mercurialismus.

This young man offers for our study a condition that you will not very frequently encounter. In order to get rid of some parasite, he bought some mercurial ointment and used it five times, and now he comes to us with all the symptoms of mercurial poisoning. Shortly after the last application he had fever, headache, nausea, and diarrhoea, followed by profuse salivation. Since then, his vital functions have been very much depressed, and his gums spongy. There has been no paralysis, but you see this eruption on his limbs which I would call a mercurial eczema. Here, then, we have the symptoms of acute mercurialismus. It is interesting to note how quickly the toxic condition followed a local use of the poison. He bought fifteen cents' worth of the ointment and used it all in five applications, in the course of two or three days. In such cases, changes may be produced in the spinal cord that will result in paralysis; he has had as yet no paralysis, but it may come on later. There is, you must know, a form of myelitis, due to mercury; therefore we must not consider that all danger has passed because the more acute symptoms have subsided, for he may yet have a series of paralytic troubles. As for treatment, the first and principal indication is to secure the elimination of the mercury, for it is wonderful to note how this poison will permeate the system. Some distance away from its point of introduction we may find the globules, for the metallic mercury will pass through the interstices of the tissue, while there will be also a process of oxidation, and it will be found as an albuminate. To eliminate the

mercury we will use iodide of potassium, which is the best agent, as it forms, with mercury, a soluble salt that will be excreted by the kidneys. If the case is an obstinate one we should resort to sulphur baths, which are highly prized in this connection by the French. The skin and all the emunctories should also be kept active, but the most important indication is the administration of iodide of potassium.

MEDICAL SOCIETIES.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated meeting, Thursday, January 7, 1886. The President, B. F. Baer, M. D., in the chair.

Dr. Howard A. Kelly exhibited recent specimens of

Pyo-salpinx, Hydro-salpinx, and Papilloma of the Hilum, with Gelatinoid Thickening of the Fallopian Tube.

The histories of the cases will be given at some future time.

Dr. Goodell stated that while he recognizes the necessity for operation in pyo-salpinx, he does not think it necessary in hydro-salpinx. He now refuses to operate in some cases of cystic disease in which one ovary may contain a cyst as large as an orange, or in which the tube may be distended to the size of a sausage, because the sufferings of the patient and her general symptoms are not severe enough to warrant the operation. In many of these cases the symptoms may all be removed by the rest treatment, and it should first be tried. Small cysts are frequently found in ovaries, especially when uterine fibroids are present, but they do not necessarily develop into large ones. In many cases the cause of pelvic symptoms can be diagnosticated by exclusion only, and even when small cysts or dilated tubes can be felt, treatment should be first tried, and will be sometimes successful without operation. He thinks the error of the present time is in the direction of too much surgical interference.

Dr. Montgomery remarked that there was a class of cases suffering from small ovarian cysts or distended tubes, in which the rest treatment or any other loss of time could not be thought of, and in which operation seemed imperative. This was on account of the pecuniary condition of the patient, who may be self-supporting, or who may be the only support of others; the suffering and ex-

haustion of the disease incapacitate them for work; relief is imperatively demanded, and he considered operation justified.

Dr. Goodell recognized this element of poverty, and has operated for this reason in some instances. He was led to make his remarks by a case now under his care. A lady was sent to him for operation after an opinion had been given by an experienced gynecologist of another city that relief could be obtained by operation only. On one side the ovary was enlarged and the other ovary was prolapsed and tender. Rest treatment had wholly cured her. In these remarks he casts no reflection on any of Dr. Kelly's cases. Pus was present in all of them, and operation seemed to be demanded in all.

Dr. Baer has been strongly impressed lately with the views expressed this evening by Dr. Goodell. Dr. Baer thought all conservative means should be tried before operating.

Dr. Kelly replied that he had presented the specimens purely from an anatomical and pathological standpoint, and that he will give the histories at some future time when the results of operation are well demonstrated. In each of them operation was imperatively demanded to save life. It is in such cases as those presented this evening that the great work in the future must largely lie. If the details of ovariectomy have been perfected, in such cases as these the chapter is only being opened. They are not examples of Battey's operation, or Tait's operation, but stand as representatives of classes of disease well defined, with equally well defined indications for treatment. The extraordinary difficulty of digging such masses as these out of the pelvis makes the operative interference very fatal, although it is the only resort.

Dr. William Goodell read a paper on "A Year's Work in Laparotomy," which will be published in full in the *Medical News*. During the past year he had had forty-four cases of laparotomy, with four deaths, as follows:

	Cases.	Deaths.	Recovery.
Ovariectomy	28	2	26
Oöphorectomy	9	1	8
Hysterectomy	2	1	1
Exploratory incision	4		4
Pelvic abscess	1		1
Totals	44	4	40

Of these forty-four cases, twenty-five had been operated on at his private hospital, with two deaths; twelve were operated on at the Hospital of the University of Pennsylvania, with one death; and seven were operated on at the homes of the patients, with one death.

Of these four deaths, one only was due to septicæmia, and that, a case of oöphorectomy, occurred in a private room of the Hospital of the University. It was not, however, due to hospitalism, but to the adverse complications of the case. The ovary and oviduct were filled with pus, and so matted by inflammation to adjacent structures that only a portion of them could be removed, and that in fragments. The pus unavoidably escaped into the peritoneal cavity, which was carefully cleansed and a drainage-tube put in; yet a fatal inflammation set in. Another death was due to shock after the removal of the womb containing a fibroid tumor with extensive adhesions, and weighing seventeen pounds. The two deaths after ovariectomy were not due to septicæmia, and are somewhat mysterious. One case was operated on at the patient's home in Bedford, Pa., and Dr. Goodell did not see her again. The cyst was par-ovarian, weighing forty-three pounds, was without an adhesion, and easily removed. The stitches in due time were removed, the bowels were opened, and everything did well for twelve days. Then obstinate vomiting set in, and the lady died on the seventeenth day. Six months previously she had had an analogous attack of obstinate vomiting, in which her life was despaired of. The fourth death took place from a supposed attack of malaria, to which the patient was liable. Both ovaries had been removed, the larger one weighing about thirty pounds. There were omental adhesions and very firm parietal ones, needing a number of ligatures. She recovered promptly from the operation, the wound united, the stitches were removed, and she was allowed to sit up out of bed. On the seventeenth day malarial fever, with bilious vomiting, set in, and she died rather suddenly on the twenty-first day, with symptoms of heart-clot.

Of the nine oöphorectomies, four were performed for ovaralgias, three for bleeding fibroids, one for epilepsy, and one for a menorrhagia, which had resisted every known therapeutic measure. In three cases of ovariectomy, all of them with papillary cysts, rupture had taken place a few hours before the operation; but although the peritoneum seemed thickened and injected, no bad result followed. He considered papillary cysts to be benign in the very great majority of cases, and that the danger from the escape of ovarian fluid into the abdominal cavity was very much overrated. He had not refused to operate in a single instance of ovarian tumor, no matter how low the patient

was or how firm were the adhesions. He had consequently had several exceedingly difficult operations. Out of his twenty-eight ovariectomies, there were twenty-one with adhesions. In four the adhesions were universal; in eight more they were intestinal; and in three they were uterine. This very large proportion of adhesions when compared with those of European operators, he could explain only on the theory that physicians in this country have not yet been educated up to the idea of an early operation, and to a recognition of the evils of tapping. In the successful operation of hysterectomy, a tumor weighing eight pounds was removed, together with a portion of the enlarged womb. As the uterine cavity was not invaded, the large pedicle was transfixed, tied, and dropped. The four exploratory incisions were made with the view of removing the ovaries, on account of the fibroid tumors of the womb. But in each the tumor was so fixed by adhesions that the ovaries could not be reached, and the patients had previously stipulated that in that case the uterine growth was not to be removed. All did well. So also did a case of pelvic abscess communicating with the bladder and rectum. It was opened per vaginam by means of the abdominal incision, by which its exact position and size were determined.

With regard to the technique of the operation for laparotomy, Dr. Goodell stated that he used the ordinary knot and the Staffordshire knot indifferently; that he now in the long incision cuts directly through the umbilicus, instead of going around it on the left side; that he includes the recti muscles and all the tissues in the abdominal sutures; and that while not a very firm believer in the spray part of antiseptic surgery, he had resorted to the atomizer in every case but one, and that one did as well without it as most do with it.

Dr. Montgomery thinks Dr. Goodell should be congratulated upon his success, which is remarkable for operations in unselected cases in the United States. He thinks the knowledge of the safety attending the application of Monsel's solution to oozing abdominal surfaces very gratifying. He would have used it recently but for the fear of bad after-effects. He must, however, again enter his plea for the second ovary. In young women small ovarian cysts are common; they are frequently found in post-mortem examinations when there had not been the slightest evidence during life of their presence; and evidently these small

cysts do not necessarily develop into large ones. The two cases of secondary ovariectomy reported by Dr. Goodell are not sufficient to warrant the rule of removing the second ovary when it is but slightly diseased. As a counter-weight to Dr. Goodell's cases he would mention that in the instance of a young married woman from whom he removed an ovarian tumor, and in which he left the other ovary, which was slightly affected, pregnancy has since occurred, followed by the delivery of a living child.

Dr. Kelly remarked that Dr. Keith had had remarkably good results from the application to oozing surfaces of a solution of persubnitrate of iron. He has observed the gradual disuse of carbolic acid in washing waters in operations. Dr. Kelly prefers boiled or distilled water as used abroad, as he is sure that carbolic acid and other germicides are frequent causes of poisoning and bad results after operation. He asked Dr. Goodell what were his rules respecting the use of the drainage-tube.

Dr. Baer had experimented with Monsel's solution. In one case in which he used it he attributed the fatal result to it. The coagulation by the iron is unsightly, and he should now consider it a last resort. He had had very good results from pressure by packing sponges against the bleeding points, combined with external pressure. He withdraws the sponges at the last moment before tightening sutures, and then bandages the abdomen tightly.

Dr. Goodell remarked that Dr. Montgomery was perfectly right in his defense of the second ovary, and he himself had performed double ovariectomy in only seventeen cases of the twenty-eight. He did not believe that every ovary studded with cysts would inevitably degenerate into an ovarian tumor. So in the case of slightly diseased ovaries in young married women he would be disposed either to let them alone or to remove the diseased portion only. But in women approaching the climacteric, or where other conditions would make it advisable, he would remove the second ovary as useless in itself, and as a possible source of future trouble. He has used the drainage-tube but three times during the past year; once in the unfinished case of oöphorectomy, again in the case of torn bladder, and in the case requiring over thirty ligatures and with universal adhesions. In general, he uses it when a free oozing of blood is to be expected, but he regards it as a source of trouble, and removes it as soon as possible.

W. H. H. GITHENS,
Secretary.

CHICAGO MEDICAL SOCIETY.

OFFICIAL REPORT.

Stated meeting, February 1, 1886. The President, C. T. Parkes, M. D., in the chair. Dr. J. Suydam Knox read a paper entitled

Quinsy as a Rheumatism.

The author reported the treatment of fifty cases of the disease. In forty-five cases (95 per cent.) there was a positive rheumatic diathesis. Forty of these cases were cured in thirty-six to seventy-two hours, without suppuration. The treatment was salicylate of sodium, and hot alkaline gargles, or the repeated insufflation on the tonsils of bicarbonate of soda. Five cases, decidedly rheumatic, were not benefited by similar treatment. Five cases, not rheumatic, were not benefited, and at the end of forty-eight hours the ordinary treatment of quinsy was followed. Only one of these cases did not suppurate. The doctor concludes that a large majority of quinsies are rheumatic inflammations:

1. From the percentage observed.
2. From the success of anti-rheumatic treatment.
3. From the similarity between the symptoms of quinsy and rheumatism.

Dr. Knox said that wherever possible he used an insufflator and blew bicarbonate of soda directly on the tonsils, using as much as thirty grains, and allowing it to remain on the tonsils as long as possible, to be followed by a gargle of water as hot as could be borne, and to be continued until the throat was cleared, which would take from half an hour to two hours. He sometimes used carbolyzed lime-water, with morphia.

Dr. J. S. Knox said that he could not say as to every case, but that where suppuration takes place it is usually in the gland, an abscess is formed from glandular inflammation, and suppuration takes place through the gland.

Dr. A. B. Strong reported

A Case of Intubation of the Larynx for Acute Catarrhal Laryngitis, with Recovery.

He said the patient was a child, *æt.* 2½ years, delicate and small for her age. She had been sick thirty-six hours when it was decided that intubation was imperatively demanded, and it was done. Instant relief was obtained. The act of introducing a No. 3 tube had caused such an abundant ejection of the mucus, and the breathing was so easy, that the tube was withdrawn, and the child passed the night comfortably. However, at

4 p. m. of the succeeding day the tube was re-introduced with the same success, but about twelve hours after the child caught hold of the thread and withdrew the tube. The No. 2 tube was then placed in position and remained there sixty-eight hours, when recovery was complete. Dr. Strong said intubing the larynx has advantages over tracheotomy in being quickly performed, furnishing instant relief without cutting or bloodshed, being free from danger, and readily assented to by the parents. The care of the patient after operation is slight, as compared with tracheotomy, as the tube does not have to be interfered with, nor does it often clog up. The tubes as now made, those of Dr. O'Dwyer, are not easily coughed up. It is easier to introduce than remove the tube, owing to the fact that if the thread is left in the mouth it causes coughing and difficulty in swallowing. It was observed that during the thirteen hours the child wore the tube with the thread she had more difficulty in swallowing than subsequently when the thread was withdrawn, the thread being drawn across the epiglottis probably interferes with it closing the glottis during deglutition. Besides, the thread requires constant watching lest the child grasp it and withdraw the tube. Still, in case a mass of mucus should lodge against the lower end of the tube and stop respiration, the thread might be the means of saving the child's life by allowing the tube to be speedily withdrawn.

The President said it was a matter of surprise to him that so small an opening would allow the exit of secretions, as in the case just reported. It had been his experience that recovery always follows cases of catarrhal laryngitis. However, in these cases, he thought the introduction of the tube might be of great benefit in relieving difficult breathing or dyspnoea, and in allaying the fears of friends. He was aware that a very small opening gave air sufficient for inspiration for some hours. He once operated on a boy about five years old, in whom the trachea by improper manipulation was turned in some way, and the incision made in the side of the trachea. When the external tracheotomy tube was introduced into the wound, the child breathed quite well, the suffusion of the face passed away and the lips became red, but still the sound of the breathing was not satisfactory to the ear. He then tried to introduce the internal tube, and found the child had a return of all the symptoms of suffocation. On removing the wound the trachea was seen

unopened. The child recovered. The President said that while the tube was in this bad position he looked into it through the fenestra, and the bottom of the fenestra was an opening through which the smallest probe could be introduced into the trachea, which enabled the child to inspire air enough to relieve the urgent symptoms. He thought that in a case of true diphtheritic laryngitis an opening of the size of the tube under discussion could, in his opinion, not give exit to any such amount of secretion as is frequently seen during an operation. He did not think that intubation of the larynx would take the place of tracheotomy; it no doubt is of great benefit in those cases where the patient is likely to die unless some measure be quickly adopted which will give time enough to allow the operation of tracheotomy. In the case under discussion, the tube was worn sixty-eight hours continuously. He had not seen a case of tracheotomy where the closure of the fenestra gave evidence that the trouble with the larynx or glottis was overcome in less than six days. This was the shortest time in which he had been able to remove the tracheotomy tube.

Dr. F. E. Waxham said that from his experience with intubation of the larynx, he was thoroughly convinced of its utility, and its superiority over tracheotomy. He had eight recoveries out of his first seventeen cases, a result which he claimed could not be approached by tracheotomy, especially in Chicago. The ages of the patients varied from 11 months to 5 years; he considered these eight cases as being saved from certain death, as in only one case would tracheotomy have been permitted by the friends, and he had the corroborative evidence of other physicians as to the impending danger, and the urgent necessity of surgical interference. Since his last report he had had a number of cases, and had performed the operation four times during the last week, one patient being only 11 months old, suffering from both laryngeal and pharyngeal diphtheria; the urgent symptoms were at once relieved. In another case, aged 18 months, where death was impending, the tube was introduced without difficulty and the child relieved, and recovery would without doubt have been the result had not the child died of pneumonia on the second day. In another case, one of malignant diphtheria in a child of 2 years, the patient succumbed on the second day after the operation. In another case, he found the patient cold and livid, pulseless, and unconscious. After the tube was introduced, cold water was dashed on the child's

face, and in about five minutes he looked around and asked for his father, took some milk, and passed into a quiet sleep. This child died from pneumonia three hours later. Dr. Waxham said that in the eight cases that recovered, in every instance false membrane was observed; when the tube was introduced, the membrane was ejected, either in large flakes or broken-down masses. He recommended that in treatment after intubation nothing at all irritating should be given, as when a child takes fluid of any kind a few drops will trickle into the trachea and cause violent coughing, and this irritation will often lead to pneumonia. In a child rugged and strong, bichromide of mercury may be given to hasten disintegration of false membrane. The most remarkable case coming under his observation was a child of 4 years upon the verge of suffocation, when, upon the tube being introduced, a considerable portion of false membrane was thrown out through the tube, and the violent symptoms subsided at once. The thread was removed, and the second day after the operation the child was playing about the room, and continued about the house during the four days that the tube was worn, and finally made an entire and perfect recovery. Dr. Waxham thought that in regard to the comparative value of tracheotomy and intubation very much might be said. The textbooks give as the percentage of recoveries from tracheotomy about one in three, but these statistics are made up from the most favorable reports. If a physician has one recovery out of three or four cases he is justly proud of it, and reports the case; on the other hand, if there is one recovery out of fifteen or twenty cases no report is made. He had known one physician to have operated fifty times with but two recoveries. Dr. Waxham thought that the thread should always be removed, as it is a considerable cause of irritation, and that no difficulty need be experienced in removing the tube with extractors. He thought intubation had a grand future.

Dr. E. Fletcher Ingals did not take an enthusiastic view of intubation excepting for young children, when he thought it would be found more satisfactory than tracheotomy. In very young children tracheotomy does not result well, and he thought intubation would be unsatisfactory in older ones until we have larger tubes. He stated the accepted opinion of surgeons to be that a tube of less than one-fourth of an inch in diameter can not furnish sufficient air for a child to live on. Dr. Ingals thought that Dr.

Waxham with utility. Ingals is pre than much amou He sa tion h was n five y and o thoug main remo cases of fr that away are c tion prett statit half had this on fi least tion to st wha of t is th har I way accu oper oper so s such frie by free biliti treat rap aro com pit and ho did for ing of loc shr and

Waxham had been remarkably successful with intubation, and had demonstrated its utility, for which he deserved credit. Dr. Ingals thought that intubation of the larynx is preferable to tracheotomy in children less than three and a half years of age; children much older than this cannot get a sufficient amount of air through the tube now in use. He said, also, that in performing one operation he had had trouble with the gag, which was not large enough for the child, a boy of five years, who lifted his teeth from the gag and closed them on the doctor's finger. He thought there was no need of the thread remaining, as there could be little difficulty in removing the tube. Dr. Ingals thought in cases where it is difficult to get the consent of friends, or where the conditions are such that tracheotomy cannot be performed right away, intubation would be of value; there are cases not membranous in which intubation may be of value. The statistics looked pretty bad for tracheotomy, but he had seen statistics of fifteen or sixteen cases where half of them were recoveries. His success had not been quite so good, but he attributed this mainly to the fact that he had operated on five children who were almost dead, or at least had stopped breathing before the operation began. He had the good fortune once to save a child who had not breathed for what seemed to him twenty minutes. One of the strong points in favor of intubation is that it may be done early, and it does no harm even if unnecessary.

Dr. H. T. Byford said there was another way of drawing the line which would more accurately describe the usefulness of the two operations. Intubation seemed to him the operation for private practice, and statistics so far are comparatively favorable to it as such. But the coöperation of the patient's friends, the preparation of the inspired air by passage through natural channels, the freedom of intubation from grave responsibility, its bloodlessness, the simplicity of treatment afterwards, as well as the greater rapidity with which the mucous membrane around the vocal chords will get well, are conditions which have less bearing in hospital practice, where we have trained nurses and all modern appliances, and there is more hope of success in tracheotomy. While he did not think this latter operation favorable for private practice, such advantages as having the tube under the eye, and within reach of the fingers, of an attendant, the ease of local medication, the possibility of removing shreds of membrane and plugs of mucus, and of inspecting the parts, by removing the

tube, and the longer time the tube can be retained—these are things that do not pertain to intubation, and which, in hospital practice, must secure for it some consideration. He said that there was one clinical fact that had not been mentioned in this connection, yet which, more than all other things put together, accounts for the success of intubation and the failure of tracheotomy as life-saving measures: in the one the patient can cough, in the other he can not. After intubation the patient can normally close the glottis, compress the inclosed air in the lungs, and with sudden explosive force expel everything that is sufficiently loosened. This accounts for the fact that with such a small tube the patient experiences no difficulty. After tracheotomy the patient has no means of compressing the air and expelling it with sudden explosive force; he can simply inspire and expire forcibly, and after exhausting efforts get rid of a little of the mucus. This desperate condition of affairs has led some surgeons to employ the dangerous and barbarous custom of introducing feathers or other irritants into the tube to stimulate the mucous membrane, which excites the patient and scatters the mucus both upwards and downwards. When somebody invents an appliance which will enable the patient to really cough through the tube, then tracheotomy will be placed upon a rational basis, and will stand some chance of becoming a useful operation. The doctor thought tracheotomy had made a poor showing for its years of trial.

Dr. G. C. Paoli said that malignant diphtheria is a morbid poison, and that in epidemic cases there are very few recoveries. He stated that in such cases exudation takes place in the larynx or pharynx, and that an operation would only result in sending the patient more quickly to another world.

Dr. W. E. Quine said that he had operated twelve times for tracheotomy, and had not had one recovery in diphtheritic cases. He knew he was not alone in an experience of unvarying failure in cases of this kind; and he knew some surgeons now regard tracheotomy with very little enthusiasm. It seemed to Dr. Quine unfair to place intubation of the larynx in contrast with tracheotomy upon the basis of the assumption that tracheotomy is always a *dernier resort*, that it is done when the patient is absolutely moribund, and that intubation is done under the most favorable circumstances. This is not the fact. Dr. Quine said he was personally cognizant of two of Dr. Waxham's cases, in which the patients

were in *extremis*, and in which death would undoubtedly have occurred in two or three hours had not relief been afforded. Surgeons rarely had occasion to perform tracheotomy under more discouraging circumstances.

Dr. J. J. M. Angear said he wished to call attention to a physiological and anatomical fact that had not been alluded to, viz.; that the arytenoid cartilages are not mature, and that the chink of the glottis is held open by positive muscular action in small children, whereas in adults and older persons the arytenoid cartilages are mature and the chink is never closed. Dr. Angear said that a large number of children who suffocate will suffocate when there is no membrane present to cause suffocation, but simply some diseased condition that has interfered with the action of the delicate little muscles that draw back the arytenoid cartilages. When inflammatory action has interfered with these muscles drawing back the arytenoid cartilages, some mechanical interference like this tube will assist these muscles to keep the chink of the glottis open and let air in. He thought a large number of children who died of diphtheria did not choke to death, but died of poison in the system, and he did not think either the tube or tracheotomy, or any other process, could save them. If there was interference with the opening of the chink of the glottis he had no doubt the introduction of the tube would save the life of the child.

Dr. J. S. Knox said that the curse of tracheotomy are the subsequent thoracic complications, either heart clogs or congestion and inflammation of the lungs, producing fatal results, and the reason probably is that tracheotomy is the final resort in cases of laryngeal obstruction. He thought that if tracheotomy were performed as early as intubation, there would be fifty per cent. of recoveries. The great advantage of intubation is that it can be performed early, and the early operation of intubation would no doubt save many a life that tracheotomy would not save performed late. He thought that tracheotomy performed as early as intubation would show as good results.

The President said that he did not intend to say anything against the practice of intubation, but he did not believe that it would take the place of tracheotomy. Intubation has had but a very short trial, and it is not yet time to pronounce it better than tracheotomy. The early experience of the President in tracheotomy had been almost the same as that of Dr. Waxham in intuba-

tion. In the first fifteen cases operated on but half of them recovered, and his later experience was better than that reported by Dr. Waxham, as within the last month he had had three cases of tracheotomy, all recoveries, while Dr. Waxham reports four cases of intubation, all fatal. So far as his own personal experience went, he thought tracheotomy had the advantage. The President thought that if he should put a tube in a child's throat for the relief of laryngitis, and the child died without his having performed tracheotomy, he should consider himself very much to blame. He had no doubt that cases of extreme diphtheritic laryngitis got well after tracheotomy; he had seen diphtheria of the pharynx and of the larynx recover after tracheotomy. Although he did not feel enthusiastic about intubation, he thought it had a very good place, and in many cases might be very useful, but could never supply tracheotomy.

Dr. Waxham said he had never found the tube occluded when it was removed. In one case when he introduced the tube a portion of the membrane was crowded down ahead of it, obstructing it entirely, and the tube was ejected and was then completely filled with membrane; the child recovered subsequently. On removing the tube on the fourth or fifth day, he did not find it occluded.

Dr. A. B. Strong said, in conclusion, that he had had some experience with tracheotomy, having had twelve cases with but one recovery. He had no doubt that in cases of diphtheria the membrane could come up through the opening. The case read was reported as spasmodic croup, and was not supposed to be one of false membrane; but he believed the child would have died without interference, and that belief was shared by Dr. Danforth, the attending physician. Dr. Strong said that he would hardly feel safe in leaving the tube in the trachea of a child without the thread. He agreed with the president that large pieces of membrane could not readily pass through such a long tube. In the case reported the tube was entirely free from membrane or pus when taken out.

—Every ancient Egyptian considered it his duty to purify himself once a month by taking an emetic, then a purgative, afterwards a bath, as they very sensibly considered that most diseases arise from intemperance, and that bad diet and not God was responsible for their sickness.

EDITORIAL DEPARTMENT.

PERISCOPE.

Laparotomy in the Treatment of Penetrating Wounds and Visceral Injuries of the Abdomen.

Dr. Frederick S. Dennis thus concludes an article on this subject in the *Med. News*, March 6:

The conclusions at which I have arrived from a study of those cases which have occurred to me recently, together with many others during the past few years, and also from those cases reported by other surgeons, are these:

1. That penetrating stab wounds of the abdomen are less fatal than penetrating gunshot wounds, but that the former are fatal in too great numbers to content us with the older methods of treatment.

2. That if the stab wound has injured the intestine or any abdominal organ, laparotomy is indicated. That it may be indicated also in cases where the gut is not penetrated, but where the gut may become twisted as a result of the stab wound.

3. That in a penetrating stab wound regarding which doubt exists, the diagnosis should be made certain at once, in order to pursue a proper line of treatment. The indications for laparotomy should be extended also to injuries of any organs within the abdomen.

4. That laparotomy offers no great additional danger to the patient, if properly performed under the strictest antiseptic precautions.

5. That while the number of exploratory laparotomies in stab wounds of the abdomen afford insufficient data upon which to establish any fixed rule of practice, the same principle which is recognized in the performance of laparotomy for gunshot wounds of the abdomen is also applicable to penetrating stab wounds.

6. That the enlargement of the original wound for an examination of the peritoneal cavity will not enable the surgeon to exclude in all cases fecal extravasation, perforation, volvulus, or hemorrhage. These may all exist, and no evidences of their presence be manifest upon inspection through a small opening. My own experience accords with that of Prof. Weir, that enlarging the wound may or may not offer the essential knowledge.

7. The size, shape, character, and velocity

of the bullet, the attitude of the patient, the kind of weapon used to produce a stab wound, seem to me to influence the question of laparotomy. Any and all of these injuries are likely to produce perforation; and if there is any value in abdominal section, it should be promptly performed, irrespective of the facts connected with the penetrating abdominal wound.

8. It is possible to have a fatal hemorrhage from the large venous trunks in the abdomen, and this hemorrhage not be discovered until the cavity is about to be closed, when an attempt is made to sponge out the bottom of the peritoneal cavity. This has occurred to me in two cases, in one of which I had closed seven openings, and in the other I had examined the viscera in the cavity. The hemorrhage was checked at the time of the opening, and was not apparent until the close of the operation.

9. That the sutures, if properly applied, will close the perforation in every case, no matter how lacerated these wounds are. The sutures will close the wound in case of resection of the gut, so that no leakage will occur if water is forced through the sutured intestine.

10. The success of laparotomy is to be attained where every arrangement is complete and perfect. Everything depends upon the preparation which is made for this operation, and the antiseptic conditions under which it is performed. The shock, the perforations, the resections of injured parts of the canal, and the after-treatment, are all important steps in this operation; but the one obstacle yet to be overcome in the management of these cases is the control of the hemorrhage from large venous trunks; and until this object is accomplished, the science of surgery in this operation cannot be said to have arrived at a state of perfection.

In the present unsettled state of opinion, it would seem best not to perform this operation in medico-legal cases without the full sanction and support of a consultation. The courts of law have recently agitated the question of the propriety and the justifiability of this measure in penetrating wounds, and the legal profession have already upon several occasions, to my personal knowledge, found refuge in this operation to defend a criminal on trial for murder.

When laparotomy is placed among the well-recognized operations in surgery, and

when all opposition to it has ceased, the credit of this great achievement will be due to the influence of the writings and teaching of the late Prof. Gross. As far back as 1843, he said in his monograph on the "Nature and Treatment of Wounds of the Intestines:—

"Here the most prompt and decisive measures must be resorted to, or the person will perish from peritoneal inflammation. . . . It will not do for the surgeon to fold his arms and look upon the scene as an idle and uninterested spectator. Far otherwise. He has a duty to perform, and that duty consists in dilating the external wound if it be not already sufficiently large, in hooking up the injured bowel, and in closing the solution with the requisite number of stitches, at the same time that the effused matter is carefully removed with tepid water and a soft sponge."

The remarks of the late Dr. J. Marion Sims gave new impulse to these views enunciated by Dr. Gross nearly half a century ago, and these theoretical opinions were again supplemented by the distinguished work of Dr. Parkes, of Chicago, who made a practical application of the theory in his researches and experiments upon lower animals. It remained for Dr. Bull to make the practical application of this knowledge available to higher uses, and thus step by step, through nearly half a century, we have arrived at the accomplishment of our object. It is a source of national pride, that laparotomy in penetrating wounds and visceral injuries of the abdomen was conceived, developed, and perfected in America.

A Case of Reflex Vaso-Motor Neurosis Dependent on Ovarian Displacement.

Dr. H. J. Boldt thus writes in the *Amer. Jour. Obstet.* for February:

F. L., æt. 16 years, began to menstruate at 13. At the time of her first menstrual period she noticed a purple discoloration of the entire right upper extremity, interwoven with white spots; at the same time a swelling manifested itself on the lower part of the right leg and foot, the latter, however, without change in color.

The entire upper extremity always felt cold during menstruation. These changes began one day prior to menstruation, and would reach their height on the fifth day, gradually disappearing in from two and a half to three weeks, to begin again at the next epoch.

One year ago the condition below described took place for the first time. One day prior to the beginning of menstruation,

the right upper extremity began to swell and became discolored, of a purplish-blue color, interwoven with white spots, the swelling reaching its maximum on the fourth day, six weeks elapsing before its entire disappearance. The arm felt cold, and numbness and formication was complained of throughout the entire extremity; at the elbows the formication and "tingling" were felt quite severely. In the shoulder a tearing pain was felt, lasting about half an hour, and recurring twice daily. The entire right lower extremity had a very tired feeling one day previous to and during menstruation, which occurs at regular intervals of four weeks, lasting usually three days. Patient came to my clinic on account of an excruciating pain in the right inguinal region, from which she has suffered since the time of her first menstrual flow. The pain begins one and a half to two days prior to menstruation, and continues during the same. For the past year, however, the pain has been increasing in severity. Incidentally my attention was called to the swollen and discolored right hand, when the above history was obtained, and I had the opportunity to show the interesting case to several of my colleagues.

Status præsens.—The swelling is of stony hardness, not tender at any point, pitting but slightly, of deep purple color, intermixed with pearly white patches about the size of a lentil.

	Measurements.	
	Right.	Left.
Wrist.....	6½ inches,	5½ inches.
Middle of forearm.....	10½ "	7½ "
Elbow.....	10 "	8½ "
Middle of arm (upper).....	11¼ "	9 "
Near shoulder joint.....	12½ "	10¼ "

The superficial veins and capillaries of the entire right upper extremity, and the superficial veins of the anterior upper surface of the thorax, are intensely engorged, the posterior ulnar veins feeling like a hard cord.

Vaginal examination shows the uterus anteverted, freely movable, not painful.

The right ovary is prolapsed in the cul-de-sac of Douglas, and its corresponding tube is readily traced; the ovary is enlarged to about twice its normal size, very painful to touch; moderate pressure on it produces nausea, with desire to vomit. The present is the third attack (of swelling) within one year.

The result obtained from the treatment employed goes toward proving that the condition described is a reflex vaso-motor neurosis, dependent on ovarian lesion or displacement.

The patient, as noted above, had three attacks of swelling within one year, and al-

ways, from the time of her first menstruation, severe pains in the right inguinal region, with slight pain in the lumbar region, also always the very marked discoloration of the upper extremity, with swelling of the lower part of the corresponding leg and foot.

For three weeks she received regular treatment, consisting of galvanism as strong as could be borne without causing severe pain, and applications of iodine and glycerin tampons to the affected ovary. At her last menstrual period she had no pain whatever, for the first time since this physiological process began; the swelling (which had not fully subsided since her last menstrual flow) did not increase, neither did the discoloration become as marked as previously, and the swelling of the lower extremity remained absent.

Quinine Idiosyncrasy.

Before the New York Clinical Society, Dr. W. H. Katzenbach related the case of a nursemaid for whom he had prescribed quinine in the form of two-grain pills early in the day, who went to his office at 5:45 p. m. highly excited and in great distress. Her face was flushed, and her hands and arms were red. She complained of giddiness, mental confusion, and an inability to remain still. She had taken one pill at five o'clock, and in thirty minutes experienced—in her own words—"burning pain in the stomach and prickly heat all over." Her mouth and the parts behind the ears were very sore. There was great pain in the top of the head, and in the lower part of the body and the thighs. The breasts were swollen and painful. Her pulse were rapid and not strong. No examination was made. She was advised to go home and to bed at once. Sodium salicylate and sodium bromide were ordered in doses of five grains each, to be taken every hour, and the patient was requested to send word in the evening if she was not relieved. The speaker did not see her until the next day. She further said in her description that, on her way from his office to her home, she could scarcely walk straight, and feared she might be seen by a policeman and arrested for intoxication. She took one dose of the salicylate and bromide, but shortly vomited it. The burning pain left the stomach. The tongue and throat felt swollen, the pain increased in the head, and she had "a feeling of being smothered." At 7 p. m. she fell on the floor unconscious. When consciousness was regained she took another dose of the salicylate and bromide. Her legs were painful and heavy, refusing to

support her. A cold perspiration came on, which continued some time, during which her bowels were moved. A third dose was afterward taken. At 10 p. m. the pains had left her head and extremities, but fullness of the head remained. She slept, off and on, from this time till morning, and awoke feeling well. Her urine was retained from the time of taking the quinine until the next morning.

"These symptoms," said Dr. Katzenbach, "were undoubtedly caused by the quinine. She had a similar experience in England a few years ago from a dose of five grains. She was reluctant to take what I had ordered, and did so after considerable persuasion by a friend."

Dr. Griswold has seen cases of eruption following the administration of quinine. He did not believe the amount of the drug taken was of any importance, small amounts, in his experience, producing the same effects in cases of quinine idiosyncrasy.

Dr. L. E. Holt had had a case in which, after cinchonidine had been taken, an eruption appeared very similar to that produced by belladonna.

Dr. T. H. Burchard believed that all skin lesions were apt to be aggravated by quinine. He had had a patient, the subject of chronic eczema, for whom, on account of some malarial manifestations, he had ordered twenty grains of quinine a day. In forty-eight hours the patient had an acute exacerbation, and was laid up with an attack of acute general eczema. Six months later the same result followed the use of Warburg's tincture. In a second case, that of a young lady who suffered from chronic erythema nodosum, an exacerbation with gastric disturbance followed the use of butter, and a single large dose of quinine induced an acute attack of the ulcerative form.

Antipyrin and Calomel Compared in Pneumonia.

The *St. Petersburg Weekly Clinical Gazette* publishes some observations which have been made by Dr. Posadski, under the direction of Prof. S. P. Botkin, on the comparative results of the antipyrin and calomel treatments in croupous pneumonia. He thus treated a group of twenty-five cases with antipyrin alone, giving from half a gramme to two grammes (seven and a half to thirty grains) for a dose, and one to eight grammes (fifteen grains to two drachms) per diem. A second group of twenty-three cases, as similar as possible to those of the first group, was treated with calomel in doses of one-eighth

of a grain four times a day. The average age of the patients in the first group was twenty-seven years and a half, and that of those in the second twenty-five years and a half. Those treated with antipyrin retained their full consciousness, but in the course of two or three days failed greatly in strength, the heart's action becoming exceedingly weak. They suffered from cough, and with difficulty expectorated a small quantity of slightly-tinged sputum. After the first few doses there was a fall in the temperature, but not of a permanent character; sometimes, indeed, there was no fall at all, and when there was, notwithstanding the continuance of the drug, a rise followed. The crisis took place with a fall of temperature on the average on the seventh day of the disease, the mean number of days of fever being 8.1, but the local physical signs lasted 13.5 days. Complications occurred in nearly all the cases, sometimes being of a serious nature, collapse even being noted. In the urine there was nearly always albumen in considerable quantity, also antipyrin. The fall in weight averaged 20.34 zolotniks (about twenty-seven ounces), which was less than the mean fall of the patients treated with calomel, but the latter recovered their weight more rapidly during convalescence. When the doses of antipyrin were frequent, vomiting was often induced, and in two cases an antipyrin rash made its appearance. Those treated with calomel frequently presented a typhoid condition, and in some cases there was delirium. They were not much distressed by cough, the sputum was expectorated easily and in considerable quantity, and they did not suffer from sweats. The temperature rose high. The mean duration of the fever before the critical fall was 7.1 days, which was generally accompanied by drenching perspiration. The local physical signs lasted on the average nine days (against 13.5 in the other group). There was rarely albumen in the urine, and when it existed there were only traces. Complications were infrequent. The general conclusion arrived at was that antipyrin, in spite of its power of reducing fever, has no beneficial effect on the course or result of the disease.

Lead-Poisoning by Household Utensils.

The German Parliament has now under consideration a bill which is intended to regulate the employment of lead in the manufacture of cooking and other domestic utensils, and so to diminish the risk of poisoning by that metal. The provisions of this measure certainly do not err on the side of leni-

ency. They forbid the use of vessels containing more than ten per cent. of lead in their composition for the above purposes. No alloy with over one per cent. may be used in coating iron articles used in cookery. Solder may consist of lead to one-tenth of its amount, but no more. Enamels into which lead enters are treated with equal stringency. The effect of this bill, if it be passed, will be to obliterate the legal existence of pewter and of soft solder as at present made, since these alloys contain from one-half to one-fourth of their weight of lead. One fact which it brings into prominence is that lead-poisoning in Germany appears to arise from other causes besides those to which it is commonly attributed in this country. Cases of this kind among ourselves are usually found in the persons of those who are actually engaged in handling lead or its compounds in their daily occupation. Plumbers, painters, glass-blowers, glaziers, potters, and enamel-card makers furnish the majority of those who suffer from plumbism. When this disorder appears in the household, new paint in the walls or the lead work of the water service affords a clue to its detection. It is comparatively rare to find in these days that pewter pots or cooking utensils are at fault. This may be because glass is used on the whole far more frequently than pewter in the liquor trade; while in the kitchen those vessels, the contents of which are most likely to become contaminated with lead in the solder—such, for example, as preserving pans—are usually made of brass or copper (which is kept well burnished), and present a relatively trifling soldered surface, or are lined with porcelain. The water used in cooking also acts as a protective, since the lime-salts contained in it tend to prevent the solution of lead. The proposed German legislation on this subject is very perfect in theory so far as it goes. Possibly it may be called for by the teaching of experience. In this country it would probably be found to be needlessly severe, and would not cover the chief causes of the evil which it is intended to meet. We do not see how it can do this even in Germany, unless measures of equal rigor be adopted to control the use of lead in manufactures and in its other domestic applications. The introduction of these further restrictions might fitly exercise the judgment of our own as well as foreign legislators.

—Dr. Don Salustiano Fernandez de la Vega, Professor of Anatomy, has been appointed Dean of the Medical Faculty of the University of Zaragoza.

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ATTEMPT AT BACTERIO-THERAPEUTICS.

It has of late often been said that the discovery of pathogenic bacteria, even admitting the theory to be true, would probably lead to no important therapeutical results, for drugs, which really possess bacillicide properties, have to be administered either in doses so large as to threaten life, or locally directly to the diseased spot, which is but seldom possible without endangering the very existence of the individual.

But recently a new method has been discovered, which promises to give us better results. An Italian professor, Dr. Arn. Cantani, of Naples, who has acquired during the last few years a well-merited reputation for his original researches, the care with which he executed them, and the reliability of the results he obtained, as appears from a preliminary communication of his to the *Centrbl. f. d. Med. Wissensch.* (29, 1885), has investigated the therapeutical value of the new theory, and taken a step in a direction differing greatly from that of all his predecessors in the same field.

It had long been looked upon as a well-established and indisputable fact that some species of bacteria have a destructive influence upon the culture of others, especially pathogenic microbes, provided they are brought in contact with them in a certain manner, and at the right time of maturity. This fact caused C. to conceive the idea to try in an experimental way its application to the therapeutics of some infectious diseases. He first endeavored to combat Koch's tubercle-bacillus with the exceedingly common bacterium termo, after he had convinced himself of the perfect innocuousness of the bacterium termo by various injections and inhalations practiced on animals. A woman, aet. 42, had in the left apex a large cavern. The patient was very weak and greatly emaciated, suffered from a febrile temperature every night, and expectorated large quantities of a purulent sputum containing elastic fibres and numerous tubercle-bacilli. A pure culture was made of bacterium termo and largely diluted with beef tea, a constituent portion of which was nutritious gelatine. This diluted pure-culture the patient was made to inhale by aid of an atomizer provided with two rubber balls, so as to insure uninterrupted atomization. The quantity of the expectorated purulent masses rapidly diminished, and finally the latter ceased completely; at the same time the tubercle-bacilli, which were formerly contained in the sputa in such great numbers, became less and less, and had totally disap-

peared by the end of the first month, while bacterium termo increased in number in the same ratio as the tubercle-bacillus diminished. The temperature also declined, and ultimately never reached higher at night than half a degree above normal; the patient increased during this period twenty-two pounds in weight, and her general health, as well as her physical strength, had greatly improved.

Certainly it is still too early to draw definite conclusions from this single case, and Dr. Cantani published this preliminary report only to draw the attention of other observers to this new field. If we take into consideration that the septic bacteria, for instance, whenever they penetrate into the tissues inhabited by any other species of pathogenic micro-organisms, soon multiply to such a high degree as to cause a destruction and total disappearance of the other bacteria, the method of C. appears plausible enough, and ought to receive a more extensive trial. At the time of Koch's discovery of the comma-bacillus of cholera, some of his opponents, though also experts, published the fact that they had not succeeded in finding a single comma-bacillus, notwithstanding their careful investigations of the fluid contents of the bowels of patients who had died of cholera. Koch explained the apparent paradox as follows: As long as the intestinal mucous membrane is only inflamed, innumerable comma-bacilli in their pure culture are invariably present in cases of Asiatic cholera, but later necrosis of the tissue sets in, induced by septic bacteria, that immigrated and found a suitable soil for their development. From the moment of their appearance, generally the fifth or sixth day of the malady, the comma-bacilli diminished in number in the same ratio as the septic bacteria increased, until by the ninth, tenth, or eleventh day in fatal cases, when the septic process had led to a complete destruction of the tissues, not a single comma-bacillus remained, while the bowels were crowded with septic bacteria. This explained the absence of the comma-bacillus in other cases of cholera, and also showed why such patients, after the specific cholera symptoms had ceased, presented the picture of individuals suffering from a low typhoid condition.

The most important result of Cantani's researches is the fact that so innocuous a microbe as the bacterium termo has the same fatal effect on tubercle-bacilli as the septic bacterium has been proven to possess on the comma-bacillus. The discovery would be of immense value, and be para-

mount to a cure of tuberculosis; it is too good almost to believe it, but Cantani's reports thus far were so truthful that we recommend at least a further trial.

NEW METHOD OF DISINFECTION.

Prof. A. Dobrowslawin, in Petersburg, has invented a stove peculiarly constructed, where by adding common salt to water (which evaporates only at 108° C.) he obtains a higher temperature, and thus by employing the heat, rooms and materials of all kinds may be disinfected.

In 100 parts water

41.2 parts common salt gave the boiling point at 108.4° C.
61.5 parts nitrate of ammonia gave the boiling point at 121° C.
206 parts carbonate of potash gave the boiling point at 135° C.
325 parts chlorcalcium gave the boiling point at 175.5° C.
88.9 parts colorcalcium gave the boiling point at 114.2° C.

With a solution of common salt the boiling point is reached in from two to three hours.

The following results were obtained:

	I.	II.	III.	IV.	V.
	HOURS.				
	DEGREES.				
The thermometer showed after 3¼	2¼	3¼	2	4	
If kept free in the disinfection space	106	105	105	107	106
20 times surrounded by a bandage	101	—	—	104.2	—
Between two pillows	101	—	90	100.2	—
In a carpet	—	103.5	—	—	102
In a bag full of wash	104	—	90	—	—
In a bag full of clothing	—	105	—	—	—
Wrapped in cloth pantaloons	—	—	100.5	100.5	—

To test the effect on micro-organisms, silk threads saturated with spores of bacillus subtilis were killed within three hours. In Experiment III, the door of the disinfection-space had been left open by accident. The stove costs about \$120, and is made of metal in St. Petersburg, Russia.

ADONIDINE.

We have been asked by a correspondent in reference to the dose and uses of this drug. In reply, we would say that there appears nothing in the literature on the dosage of adonidine up to recently, although its physiological effect had been closely studied for some time. Upon inquiry of Professor Bartholow, he kindly referred me to an article by Dr. Armand Durand on the clinical use of adonidine, which appeared in the *Bulletin General de Therapeutique* of January 30, 1885.

From the article of Dr. Durand it would appear that the average dose of adonidine is 2 centigrammes ($\frac{1}{50}$ grain) in 24 hours, administered in pill form. This dose was in some of the cases he quotes increased to 4 centigrammes ($\frac{1}{12}$ grain) in 24 hours. And in the case of a fourteen-year-old child 20 centigrammes were administered in 24 hours.

by a mistake, with the effect of producing a very acrid taste, vomiting, diarrhoea, and protracted nausea.

The dose of the leaves of *adonis vernalis*, as given by Bubnow, in infusion, was 4 to 8 grammes in 180 grammes of water in six hours.

We will be able to furnish further information on the subject of adonidine in a short time.

THE INTERNATIONAL CONGRESS.

Once more we are compelled to take the *Medical Record* to task for the inaccuracy of its statements. In its issue of March 6, we read:

"The prevailing feeling here regarding the Congress now is one of profound apathy and indifference. The news from abroad is equally discouraging. Almost the only smiling face is published at Chicago weekly. We hope for better news after the St. Louis meeting."

If the editor of the *Record* was a thick-headed Gothamite, we might believe that this wilful attempt, weak though it is, to injure the Congress, was the result of stupidity; but as we believe him to be a progressive American, we can only characterize it as a lame effort to say something in the direction which his journal has pursued. Now for the truth: there is a certain amount of "profound apathy and indifference" among those few who *would* but *could not rule*, while among the very great mass of the profession there is a lively interest in the coming Congress, and a determination to make it a success. The committee is at work, and all preliminary preparations are being satisfactorily made.

NATIONAL SANITARY CONVENTION.

We would call the attention of our readers in an especial manner to the announcement from the State Board of Health of a sanitary convention to be held in this city in May next. One of the most pregnant evidences of the march of civilization is the interest that is being taken of late years in preventive medicine. The researches of scientists by which the intimate cause of disease has been in many cases fathomed, has not been as yet productive of much result from a therapeutic standpoint; but they have furnished to the sanitarian the most powerful weapons with which to prevent the inroads of disease.

This convention, we understand, is but the

beginning of a crusade on the part of the State Board of Health, having for its purpose the fostering of this awakening interest in sanitation among the people, and we sincerely trust that our readers will use their great influence to make the convention a pronounced success.

We would ask our exchanges to kindly copy this circular, and editorially help the convention.

NOTES AND COMMENTS.

Genital Irritation as a Cause of Reflex Nervous Phenomena.

We have taken occasion to call attention to this condition in several previous issues, but more especially in reference to children. We are pleased to note that so high an authority as Dr. Lewis A. Sayre, of New York, calls attention to its occurrence in the adult in the *Virginia Medical Monthly*. We reproduce his own words:

"Mr. M—, aged twenty-five years, an unusually well-developed, muscular man, but exceedingly nervous, came to me suffering from an injury to the spine from the plunging of his horse while horseback riding, producing almost complete paralysis of the lower extremities, being unable to stand or walk without assistance, and suffering intense pain in the lumbar region. He was at once leeches, and this treatment was followed the next day by dry cups along the seat of the injury, and he was retained in the horizontal posture for some weeks. During this enforced quietude, my attention was directed to his extreme nervousness, which amounted almost to hysteria; and on examining his penis, I found this organ in a state of erection; the prepuce was firmly constricted around the glans, and it was with great difficulty it could be pushed behind the corona. The frænum was so very short as to draw the urethral orifice backwards and open. The least touch upon the meatus produced a peculiar nervous spasm of the entire body. The prepuce being drawn behind the glans, a thin white line was to be observed girdling the entire penis, and he complained of this causing him great pain. He then informed me that he suffered from constant erections of the penis, frequently lasting from twelve to eighteen hours. In many instances while in the society of ladies he would be compelled to leave the room, and frequently while horseback riding he would have to get off his horse and abandon this exercise, as the penis would become so irritable and

erect that semen would pass involuntarily from him.

I divided this girdling band upon the dorsum of the penis, and then divided also the frænum, tearing the latter down to the extent of nearly an inch, thus allowing the glans to assume its natural appearance, and removing all constriction.

Since the operation his nervous system has undergone a complete and entire change, and he will now leave on an extended European trip.

In the *Peoria Med. Mo.* for August, Dr. Frank L. Hinsdale reports a case of convulsions in a boy aged five, caused by phimosis. An operation effected a cure.

Epidemic of Cerebro-spinal Fever.

During February and March this year, an epidemic of cerebro-spinal fever existed in Oppan (Pfalz). A report of it by Dr. Demuth has now appeared in the *Vereinsbl. d. Pfalz, Aerzt.*, 6, 1885.

Dr. D. attended 16 cases; 9 of them were fatal. Prodromes were almost always absent, and the disease began abruptly with a violent chill, vomiting, and headache; at the same time stupor developed, often at once followed by coma; rigidity of the neck recently appeared within a few hours after the chill, and hyperæsthesia in a high degree was noticeable even during stupor. Jactitation was frequent, and unilateral convulsions generally occurred before death. Usually by the third day vomiting ceased; the stupor alternated with movements during which the sensorium was clear; temperature and pulse diminished, but the latter was at times irregular. Herpes labialis occasionally appeared, and the stiffness of the neck augmented rather than diminished. Convalescence began at some time between the ninth and twenty-first day.

Three main types were noticed: 1. Very acute, violent cases, at once fatal; 2. Grave cases with violent beginning and an acute course, which, however, continued longer, ending in death or convalescence; 3. Milder cases, same beginning, but after the third day rapid amelioration of all phenomena, depression specially noticeable, and without other accident recovery soon set in.

Here, as in other places, the disease was at its height during the first four months of the year. D. believes the disease to be due to infectious material, and to be propagated by drinking-water; schools he considers the main centres of infection. Children and young adults were mainly the victims.

Rheumatism and pneumonia were specially frequent at the time. In only one case was herpes labialis absent the third day. D. does not mention ecchymoses, and his treatment contains nothing new. He mainly relied on mercury, and did not at all use opium.

Laryngeal Spasm Caused by Cocaine Spray.

That we cannot use this drug without a certain amount of caution, the following case which Dr. F. De Haviland Hall reports in the *Lancet*, November 21, gives evidence. To use his own words:

"P. R., a lady of the age of fifty-six, came under my care in July, suffering from asthma. On examination, I found both nostrils filled with mucous polypi. She had frequently been operated on, the last time six years ago. In six sittings I completely cleaned the nostrils by means of the electric cautery; the patient, who had much experience of other forms of treatment, expressed her opinion most decidedly in favor of the plan adopted. Cocaine in a 20 per cent. solution, applied with the brush, greatly facilitated the operation by abolishing the sensibility of the mucous membrane, and by the power it has of causing contraction of the erectile tissue of the nose, thus enabling the operator to get a good view of the posterior part of the nasal cavities. As the patient found the heat of London very trying, it was agreed that she should go home and return for the completion of the treatment in October. Accordingly, she presented herself on October 5th. Since the patient's last visit I had bought the cocaine spray apparatus introduced by Dr. Miller, of Windsor, and, as I had used it frequently before, I began to spray the interior of the patient's nose with 10 per cent. solution. The nostrils, being no longer blocked, allowed the spray to pass into the throat. In the course of a few minutes the patient complained of a feeling of cramp in the throat. She soon became very excited, stood up, and gasped for breath; her countenance assumed an ashy hue, the hands were cold, and the pulse very frequent and feeble. Inspiration was attended with a roaring sound. Speech was not affected. There was deficient entry of air over the chest, but no abnormal sounds were audible. The symptoms clearly pointed to spasm of the abductors of the vocal cords, a condition resembling laryngismus stridulus. The distress was so great that I did not venture to suggest a laryngoscopic examination. With difficulty I persuaded the patient to

recline on a sofa, and I administered chloroform, which relieved the spasm, but she was not sufficiently recovered to leave my house until after the lapse of four hours from the commencement of the attack. Next day she was in her usual health. A few days later I completed the treatment by destroying with the galvano-cautery the mucous membrane from which the polypi sprang, taking care, however, to apply the cocaine with the brush, and not to allow any to enter the throat. The patient is distinctly neurotic, and had suffered from similar though slighter attacks on two previous occasions.

"That this is quite an unusual accident in the employment of cocaine is shown by the fact that, though I have frequently applied a 20 per cent. solution directly to the larynx, the only complaint I have had has been on account of the bitter taste of the drug."

Treatment of Tænia.

Dr. Berenger Frank, who, as director of the French navy, had an enormous material at his disposal, publishes in the *Bull. Général de Therap.*, Oct. 30, 1885, the results of different remedies for the removal of tapeworm. Of 1842 cases, 425 were treated with success, 1417 without any, i. e., the tapeworm always returned. The following remedies proved useless: Calomel, ocean salt, garlic, eucalyptus, extract of kousoo. Very little effect had ether, turpentine, felix mas; more had kousoo, and the best results were obtained with pelletierin; of 317 cases treated with it, 198 permanently recovered. The method employed was as follows:

The day before the administration of the drug the patient takes no other nourishment but milk; the day of treatment he stays in bed and receives at 6 a. m. an infusion of senna (160-240 grains to 5 oz. water). At 7 a. m. the first dose of tannate of pelletierin (6½ grains) is taken in syrup, and half an hour later he receives the second dose, always remaining in bed to prevent vomiting. At 8 a. m. a dose of castor oil is administered, which, if action does not soon set in, is followed by a senna-clyisma. The tapeworm is collected as usually.

We do not wonder at the comparatively small result of Dr. F.'s treatment for tapeworm. In an experience of twenty-two years, during which we had occasion over a hundred times to treat such cases, we have never known an instance when the ethereal extract of felix mas had not established a cure, from 2½ to 3 drachms being the dose of this remedy, which we consider far more

reliable than any other. The evening before the patient eats something salty for supper, at 9 p. m. he takes half of the remedy, at 9:30 the other half, and the next morning at 5:30 a. m. a dose of castor oil. An hour or two later the tænia appears. The best manner to prescribe the remedy is as follows:

℞. Extr. felic. maris æth. ʒ iss-3 iij.
Emuls. amygd. dulc.
Syr. simplicis, āā. q. s. ad. flʒiv-S.

Treatment of Bronchitis.

We cull the following formulæ from a paper by Dr. J. Milner Fothergill in the *Med. Record*, August 29, 1885:

In the stage of *excessive secretion* he recommends—

℞. Amm. carb., gr. iv.
Tinct. nuc. vom., ʒ x.
Inf. cinchonæ, ʒj.
4tā vel 6tā horā.

If the case is not very severe we may use—

℞. Liq. atropiæ, ʒj.
Liq. am. anisat., ʒ xv.
Aq., ʒj.
M. 6tā vel 4tā horā.

If the case be mild, then—

℞. Ac. hydrobrom., ʒ ss.
Sp. myristicæ, ʒ ij.
Syr. scillæ, ʒ ss.
Sp. chloroform, ʒ xv.
Aq., ʒj.

M. Three or four times daily.

In *chronic bronchitis* we may give—

℞. Strychniæ, gr. ʒj.
Pulv. ipecacuan., gr. ʒj.
Pulv. digitalis, gr. ʒj.
Pil. galban. co., gr. ij.

Bis aut ter in die.

If the bowels are not regular, a small quantity of podophyllin or croton oil may be added.

To secure rest at night we may use—

℞. Bromidi ammonii, ʒj.
Tinct. camphoræ, ʒj. M.

Or,

℞. Morphiæ mur., gr. ʒj.
Benzoic acid, gr. j.
Pil. scillæ co., gr. ij. M.

A Case of Dissecting Aneurism of the Thoracic and Abdominal Aorta.

In the January number of *The American Journal of the Medical Sciences*, Dr. James E. Graham, of Toronto, describes a case of dissecting aneurism of the aorta which presents many points of very great interest. The patient lived after the first formation of the aneurism, a period of more than thirty

years. The strain was taken off by an opening low down between the artery and the aneurism, which rendered it possible for the blood to flow readily back into its old channel. The aneurism extended throughout the whole length of the abdominal and thoracic aorta, and more than half the circumference of the vessel. The closing of openings in the inner coat, at the exit of arteries from the aorta, and the corrugated appearance of the inner surface of the aneurism, are also points worthy of notice in this remarkable case, which is an excellent example of the restorative power of nature, and demonstrates the possibility of the enjoyment of years of fairly good health in one suffering from an extensive dissecting aneurism.

The Treatment of Cholera Infantum.

Dr. J. H. Carster gives us the following formulæ in the *Archives of Pediatrics*:

For the vomiting:

℞.	Tinct. iodi.,	gtt. x.
	Aquæ,	3 ij.

M. Teaspoonful every half hour.

In some cases he uses a powder composed of

R. Subnitrate of bismuth,	1 drachm.
Dover's powder,	3 grs.

To be divided into twelve powders, one every two hours.

This often does in mild cases. Sometimes, however, if there seems to be a malarial complication he gives quinine, for instance something like this :

R. Sulphate of quinine,	10 grs.
Tincture of opium,	20 drops.
Syrup Yerba Santa,	2 ounces.

M. S.—Teaspoonful every two hours.

In so-called chronic cases—that is, after the vomiting has ceased, but diarrhœa continues ten or twelve times a day, he generally depends on a mixture like this:

R.	Tincture of opium,	$\frac{1}{2}$ drachm.
	Chloroform,	20 drops.
	Whisky,	$1\frac{1}{2}$ drachm.
	Cinnamon water	6 drachms.
	Simple syrup,	1 ounce.

Teaspoonful every two hours.

When the diarrhœa checks, he only gives it every four or six hours. Also, during this stage, when the disease has subsided, he gives:

R. Nitro-muriatic acid,	15 drops.
Pepsin,	1 drachm
Water.	2 ounces.

Teaspoonful every three hours.

This seems to aid digestion. In some cases the discharge seems to be checked up too quick with any of these remedies, and

we get symptoms of congestion of the brain, so-called false hydrocephalus, and the child is very liable to go into convulsions. In such cases, he always gives bromide of potassium, and some cathartic. Start up the bowels again and relieve the cerebral congestion. He generally gives about one-twentieth of a grain of podophyllin. In all cases of cholera infantum, it is especially necessary to carefully watch the effects of opium, when we use it. He believes in being very cautious in prescribing opium.

If, however, the disease progresses to the stage of collapse, active stimulants will be necessary. In such cases, he thinks belladonna is especially useful, combined with other stimulants as follows:

B. Fluid ext. of belladonna, 1 drop.
Compound spts. of ether, $\frac{1}{2}$ drachm.
Water and simp. syr., each, 1 ounce.
Teaspoonful every two hours.

Besides that, give whisky or other stimulants, apply hot bottles to the feet and body. The hypodermic injection of ether and whisky is also sometimes of benefit, and when there is very high temperature, the use of ice to the head will be useful.

Treatment of Intestinal Obstruction by the Force-Pump.

Dr. H. Illoyay, of Cincinnati, in a paper in the January number of *The American Journal of the Medical Sciences*, advocates the employment of enemata administered with sufficient penetrating power to pass beyond the ileo-caecal valve and into the small intestines, and to produce peristaltic action. He advocates the use of the force-pump, and claims, first, that enemata thus administered are superior to every other method of treatment in the rapidity with which they either relieve the symptoms or clearly indicate the necessity of surgical interference; second, that they are entirely free from all danger, and in no way prejudice the case should a surgical operation become necessary.

Remedy for Corns.

Dr. J. Sutcliffe Hill tells the *New England Medical Monthly* that some time ago he was fortunate to find a prescription that has proven, in his hands, of much value in removing corns. It is:

R. Ext. cannibus indicus,	grs. xv.
Salicylic acid,	grs. xxx.
Collodion,	3j.

Sig.—Apply with brush.

CORRESPONDENCE.

Paris Letter.

M. JULES GUERIN—M. DECHAMBRE—SENATOR ON TYPHOID FEVER—GERMAIN SÉE'S CLINICAL MEDICINE—ASTHMA—PYRIDINE—HYPNONE—URETHAN—COCAINE IN GASTRALGIA—TREATMENT OF EMPYEMA—RETAINED MENSES AT A VERY EARLY AGE.

In my last letter I spoke of M. Jules Guerin and his determined opposition to Pasteur's theories of inoculation for rabies. Since then he has passed away at the ripe age of 85, having passed somewhat more than fifty years as a prominent medical writer and observer in Parisian medical circles. He bought and became editor of the *Gazette Medicale de Paris* in 1830, and has since made it one of the most popular medical journals of Paris. He was very decided and even obstinate in his opinions, and made himself particularly remarkable in late years for his determined opposition to the germ theory and all the discoveries of Pasteur.

Another very able medical publicist, M. Dechambre, the editor of the *Gazette Hebdomadaire*, and of the new *Dictionnaire des Sciences Medicales*, also died rather suddenly from cerebral apoplexy. He was a very elegant writer of French, and has written a large number of articles in his journal and in the *Dictionnaire*. He has been for many years one of the physicians to the Children's Hospital.

The recently-issued articles of Senator on typhoid fever have attracted much attention here, where Brand's treatment by cold baths has never been very popular. It was claimed in Germany that this treatment had reduced the mortality to two per cent., or even as low as six-tenths of one per cent. at the military hospital of Straslund. These results have not been borne out by the experience of Senator, who confirms in many particulars the affirmations of Glæser at the Hamburg Hospital. Glæser had about 7½ per cent. mortality with 868 patients treated by Brand's method, and almost identically the same with 939 patients, who underwent simply a treatment addressed to symptoms.

Senator's figures have not been quite so favorable. In the eight largest hospitals in Berlin, the mortality varies from 12½ per cent. at the Augusta hospital to 19½ per cent. at the general city hospital of Fredericksein. At the Betanien hospital, where Brand's method was exclusively employed, the mortality was 13½ per cent.

As regards the treatment of complications, the practice of Senator presents a few new features. In case of collapse with symptoms of heart failure he injects hypodermically one milligram of sulphate of strychnia three times daily, or camphorated ether, nine parts of camphorated oil to one part of ether. For intestinal hemorrhage, after repeated failures with the tincture of perchloride of iron and with opium, he has arrived at the conclusion that the best results are obtained from bismuth, in large and frequently repeated doses. For insomnia he counsels lukewarm baths, bromide of potassium and opiates.

Perhaps one of the most important works on medicine which have appeared here of late, is the Clinical Medicine of Prof. Germain Sée, who occupies Trousseau's chair at the Hotel Dieu.

The third volume has just appeared, and is devoted principally to the clinical consideration of asthma, the various congestive and inflammatory conditions of the lungs, and to diseases of the pleura.

To the study and treatment of asthma, M. Sée has always devoted considerable attention, and this part of the work will probably be more noticed than others.

This is how he understands asthma: "Any form of dyspnoea which originates in the structural alteration of any organ is not true asthma. Such a form of dyspnoea, accompanied or not by emphysema, is nothing more than a symptom, a pseudo-asthma."

"To this form belong the asthmatic attacks originating in cardiac disease."

"True asthma, as an independent disease, is always of nervous origin. It is always primarily a neurosis, always chronic and characterized by attacks which follow certain determined rules. This neurosis is of bulbar origin, having its seat in the respiratory centre and its origin in the exaggerated reflex sensibility of this organ."

As regards treatment, Prof. Sée is an active partisan of the iodine preparations. He employs iodine, iodide of potassium, and iodized ether. The iodide should be administered in large doses, from fifteen to forty-five grains daily.

Iodine and its preparations, according to M. Sée, favor bronchial secretion, facilitate the reflex central act of respiration by regulating the functions of the respiratory centre, and also diminish the exaggerated sensibility of the respiratory mucous membrane.

Another important remedy is the newly-discovered product, pyridin, which probably forms the active principle in all the fuming

inhalations so commonly used in the treatment of the asthmatic attacks. Pyridin is also used as an inhalation, four or five grammes being placed on a saucer in a small room, and the patient remaining in the room for a length of time to inhale the vapor.

For the treatment of the attack, M. Sée is of opinion that hypodermic injections of morphia can frequently be used with benefit, but unfortunately they cannot be repeated for any length of time. A large proportion of this part of the work is devoted to the clinical experimentation and appreciation of the value of *quebracho*, *belladonna* and its derivatives, *lobelia*, *arsenic*, etc., in the treatment of the disease.

The two newest hypnotics, hypnone and urethan, have attracted considerable attention here, and have been experimented with largely by Dujardin-Beaumetz, Thechard, and Labbé. Dujardin-Beaumetz found that hypnone was very efficacious in producing sleep in some cases, while in others it failed lamentably; it seemed to be most successful in cases where the insomnia was of nervous origin, or accompanied with restlessness and a condition of extreme nervous erethism.

On the other hand, Filhen, at Erlangen, and Mairet and Combemalle, at Paris, report negative results from administration of the drug.

The other hypnotic, urethan, was experimented with principally in England, and has been found very serviceable in cases where persistent insomnia was experienced and the heart was diseased. In such cases where ordinary hypnotics can only be given with very great caution, urethan procured refreshing sleep for the patient without bad after-effects. The dose was generally about thirteen centigrammes.

At the last séance of the Soc. de Thérapeutique, M. Dujardin-Beaumetz strongly recommended muriate of cocaine in the attacks of gastralgia, sometimes so agonizing to tabetic patients; he uses a solution containing 50 centigrams of the muriate in 200 grams of water, giving a tablespoonful every second hour until the distress is relieved. The amelioration from the pain was rapid, but the patients complained of vertigo and dizziness.

The treatment of empyema came up for discussion at a recent séance at the Académie. M. Polaillon read the report of a case in M. Vaslin's service at the hospital at Angers.

The patient had three fistulæ, communicating with the pleura, which discharged a large amount of ill-smelling pus. He was much emaciated, the urine was albuminous, and there was every sign of approaching

dissolution. M. Vaslin resected six centimeters of the sixth and seventh rib, made a large opening into the pleura and scraped its parietes with a dull curette, removing much false membrane. He then reclosed the wound, leaving two large drainage tubes in the pleural cavity. After five months, the fistulæ are now entirely closed, the side much depressed, and the patient may be considered cured. In the discussion which followed, M. Polaillon observed that cure was obtained in this case by comparatively a small amount of mutilation, but that this was due to the short duration of the sickness previous to operation. In a case of his own he was obliged to more thoroughly follow out the method of Estlander. He found it necessary to make a large opening, resect about fourteen centimeters of the seventh rib, twelve of the sixth, and eight of the fifth rib. The patient's condition, after all this mutilation, is somewhat ameliorated, but complete cure has not been obtained.

A curious case was reported at a recent séance of the Société de Chirurgie.

A young girl, fourteen years of age, presented herself in M. Despres' service at the Charité Hospital for a tumor, which had suddenly developed in the umbilical region. There was no pain, and nothing abnormal in any other part of the abdomen. It was deemed inadvisable to make any vaginal examination on account of the youth of the patient, and laparotomy even was considered after puncture with a fine trocar had revealed the presence of blood.

Fortunately for the young girl, a few days later a large flow of blood took place from the vagina, and subsequent vaginal examination revealed a very long conical os. It was simply a case of retained menses at an unusually early age. ***

Paris, February 13, 1886.

Hydrophobia,

EDS. MED. AND SURG. REPORTER:—

A timely article appeared in the REPORTER for January 30th, bearing on the above subject, from the pen of Dr. Huddleson.

It has seemed to me ever since the Pasteur "craze," as some have termed it, commenced, the profession, as well as the people, have been pursuing an *ignus fatuus* that will lead them into swamps and sloughs of unreason. I do not expect to enter on a scientific dissertation on the pathology of hydrophobia, for I know nothing about it, and I never heard of any one who professed to know very much; and I also confess I know of no way

to distinguish a dog that has rabies from one that has not, and I know of no one who does. It does seem that all this talk about the Pasteur system is without warrant, for there is no reason to believe he has ever treated a genuine case of hydrophobia, because the disease was not developed in any one, and because no one knows whether any of the dogs were rabid. Besides that, sixty per cent. of those bitten by alleged rabid dogs are never heard from, and hydrophobia is just as likely to develop years afterward as months or weeks.

Who will undertake to say any of the Newark children would have died if they had not been inoculated by Pasteur? Outside of the sensational advertising obtained by certain metropolitan newspapers and doctors, the benefits, so far as any one can judge by results, have been absolutely *nil*. The results of post-mortem examinations on the bodies of persons dying of hydrophobia have been very unsatisfactory, and, so far as my knowledge extends, I think it would be impossible for the most expert surgeon to diagnose the cause of death in such a case, without antecedent knowledge.

Dr. H. has demonstrated the very slight analogy between small-pox and hydrophobia, and has given a very beautiful theory, and, I think, a correct one, of the *modus operandi* of vaccination; but can any one do as much for Pasteur's inoculation? We can all easily understand why vaccination or inoculation prevents, or at least mitigates, an attack of small-pox, because we believe it to be a disease produced by some poisonous matter in the blood; but I, for one, must confess my inability to understand how a portion of the spinal marrow of a rabbit which has previously been inoculated with a portion of the spinal marrow of a supposed rabid dog, inoculated a certain number of times and a certain number of days into the circulatory system of a human being, can prevent, or cure, a disease which affects the nervous system entirely, so far as our knowledge extends. The only disease which bears any strict analogy to hydrophobia is tetanus. Strichnia also produces effects somewhat similar, but a great many cases of tetanus recover without any special treatment, while it is doubtful if any one ever recovered from a genuine attack of hydrophobia.

In a score of years a man is likely to meet with one or more cases of every known disease; but in a practice of more than twenty years, I have never seen a case of hydrophobia, and never expect to. Pasteur, I believe, advises any one who may be bitten

by a dog, to pen the animal up securely for a certain time, in order to know whether it is affected with rabies. This seems to me to "knock the bottom" out of his system, for while it is well known the poison lies dormant for months and even years in the human system, why may it not do likewise in an animal? In addition to this, why could not the disease develop in the dog even after the person or another animal has been bitten? Every dog that is seen running "amuck" through the country, snarling and snapping at anything on its way, is not mad.

From the well-known affection shown by dogs for their masters, it can easily be believed that a temporary separation from their human companions, as frequently happens, may worry them into a state of excitement sufficient to cause the cry of "mad dog," particularly if a dozen or two street gamins have been industriously following in the rear with stones, clubs, and wild shouts.

It is another demonstrable fact that all or nearly all the cases of hydrophobia of which we hear are caused by the bite from some pug or spitz that has never shown any symptoms of rabies, that has been kept as a household pet, that has bitten his master or mistress by accident apparently, while being fondled or fed. I have read of two such cases during the past week.

Whatever the poison is that causes hydrophobia, it must be introduced by means of the saliva, the teeth being the medium; but who knows where it comes from?—stomach, salivary glands, mucous membrane, or where? The fact that the mucous membrane is destroyed in patches to some extent after death from hydrophobia, proves nothing; neither does the amount of filth contained at times in the stomach; neither does anything else we know so far.

Suppose any of the Newark children should be bitten again, even admitting they are cured now, would a second journey to Pasteur, and more inoculations, be necessary? Or do they possess permanent immunity? Who can answer? Can Pasteur? As Dr. H. says, if this system of Pasteur's is correct, it will prove a priceless boon to humanity; and after it shall have been proven to be efficacious, none will more readily give him praise than I; but until that time comes I, like Dr. H., must, while not looking on him as a crank, believe he is wrong, and hope in the future some remedy or means of cure for this terrible disease may be discovered, even though Pasteur's should not be that remedy. W. F. MITCHELL, M. D.

Addison Pa., February 27, 1886.

NEWS AND MISCELLANY.

State Sanitary Convention.

PRELIMINARY ANNOUNCEMENT.

The following circular which we have received from the State Board of Health explains itself:

A sanitary convention, the object of which will be to afford an opportunity for an expression of opinion on matters relating to the public health and the discussion of methods looking towards an advancement in the sanitary condition of the Commonwealth, the prevention of sickness and avoidable death, and the improvement of the conditions of living, will be held in Philadelphia, under the auspices of the State Board of Health, on Wednesday, Thursday, and Friday, May 12, 13, and 14, 1886.

The address of welcome will be delivered by His Excellency, Hon. Robert E. Pattison, Governor of Pennsylvania.

The following will be among the subjects that will be discussed by prominent sanitarians:

1. The Sanitary Needs of School Buildings and Grounds.
2. The Water Supply of Towns and Cities.
3. The Water Supply of Philadelphia.
4. The Disposal of Slops, Garbage, Refuse, etc.
5. The Prevention of Communicable Diseases.
6. The Influence of Clothing on Health.
7. Ventilation.
8. The Drainage and Sewerage of Cities and Towns.
9. The Drainage and Sewerage of Philadelphia.
10. The Influence of Diet on Health.
11. The Relations of Christianity to Health.
12. Mistakes in School Architecture.
13. Defective Vision in School Children: Causes and Management.
14. The Necessities of Physical Education.
15. Drainage and Sewerage in Country Districts.
16. Sanitary Science in Villages.
17. Municipal Sanitation.
18. Artificial Feeding of Infants.
19. Condensed Milk.
20. Various Artificial Baby Foods.
21. The Inheritance of Disease.
22. Hygiene of the Home.
23. Sanitary Plumbing and Drainage.
24. Tests for Impurities in Water: The Use of Filters.

25. Germicides.

26. Vaccination.

27. The Hygiene of Old Age.

28. Cholera.

29. *City versus Country Life*, from a Hygienic Point of View.

The public are cordially invited to take part in and help to make a success of this convention.

At a later date, a circular of details will be issued.

JOSEPH F. EDWARDS, M. D.,
Chairman Committee of Arrangements,
224 S. 16th St., Philadelphia, Pa.

Adulteration of Lard.

The *National Druggist* tells us that lard is occasionally subjected to scandalous adulterations. It contains not infrequently a large quantity (25 to 30 per cent.) of starch. Furthermore, 10 to 20 per cent. water, 2 to 3 per cent. alum, and about 1 per cent. lime have been found in lard. Unfortunately, mere inspection will not enable us to determine whether lard contains water or not, for the water is united in such a way that the lard is white and odorless. If, however, lard which is adulterated with water is heated in a pan, it soon begins to sputter, while pure lard melts quietly and without formation of bubbles. If lard is melted in a test-tube over an alcohol flame, pure unadulterated lard yields a clear, transparent, faintly yellowish fluid; poorly cleaned lard shows floating fibres of meat or shreds of connective tissue, while mechanically suspended mineral substances which were worked in to increase the weight, fall to the bottom as a deposit. Water is often added as an adulterant. To determine the percentage of water, weigh 50 grams of lard in a tared beaker-glass, and place for one or two hours in a water bath. The water is separated gradually from the lard and sinks to the bottom. On cooling, a hole is made through the lard, and the water allowed to flow out, when the loss of weight determines approximately the amount of water. The water is to be submitted to a further examination, for, in order to facilitate the mixture of the water and fat, soda (carbonate of sodium), potassa (carbonate of potassium), or lime, is often used, which saponifies a small part of the fat, and the soap brings the fat into more intimate mixture with the water. In such a case the fat would have alkaline reaction, i. e., a strip of red litmus paper is colored blue. If lime was used as an adulterant, the water will yield a white precipitate on the addition of a few drops of

solution of oxalate of ammonium. Lard, which is viscid, fluid, ropy, or mixed with fibrous substances, is to be considered as bad or as mixed with inferior fats. Lard is also often mixed with grease, which latter is characterized by being less white and of less uniform consistence, besides having a peculiar salty and disagreeable taste.

Balata.

An interesting report made by Government Botanist G. S. Jenman, Demerara, on the balata industry in British Guiana, is published in part in the *Pharm. Jour. and Trans.* for September, 1885. Balata is the concrete milky juice of *Mimosa globosa* (Gaertner), a large, hard-wooded forest tree, sometimes reaching 120 feet in height, and found ranging from Jamaica and Trinidad to Venezuela and French Guiana. Balata has never found its way into commerce in any considerable quantity, though it has always been highly spoken of. It is intermediate in character between India-rubber and gutta-percha, combining the properties of both, and for certain purposes is better adapted than any other of the natural caoutchouc substances. "Its strength, also, is very great, and, as it does not stretch under tension, for special appliances, such as bands for machinery, it is unequalled. It has recently been pronounced by an American firm of manufacturers as the 'best gum in the world,' and that it has not had a greater success is due more to the hitherto limited supply than to any defect of quality intrinsically in itself." This opinion is fully borne out in a report by Dr. Hugo Muller, F. R. S. It is to be regretted that the methods of obtaining the juice by tapping, either standing or after felling, are calculated to seriously reduce the number of these valuable trees.

The Arsenic Habit—A Remarkable Case.

Dr. T. D. Crothers reports, in the *Quarterly Journal of Inebriety* for October, a remarkable case of the arsenic habit. The patient, an English horse-jockey, had led an irregular life, and had probably drank considerably. He began to take arsenic about the year 1875, using it for the purpose of keeping off fevers. For five years he took from one to two drachms of Fowler's solution daily, and his general health continued good. From this time he gradually increased the dose until he was taking from twelve to twenty grains of arsenic daily (!), either in the form of the powdered acid or of Fowler's

solution. When seen in 1885, his appearance was that of good health, the face full, the skin clear and white, the eyes brilliant but unsteady, cutaneous sensibility was diminished, the appetite was poor, the action of the bowels irregular, and the heart was enlarged. There was no muscular weakness, but the gait was slow and hesitating.

Lager Beer.

In the *Med. Summary* we read as follows:

"We often hear physicians say, 'Take a glass of beer; it will assist digestion and produce sleep.' The remark shows that physicians as a class are poor chemists, although they study that science at college. Of all the villainous mixtures which man takes into his stomach, lager (laying) beer is the most injurious. The lager beer sold in our large cities is not beer at all, but a chemical mixture of water, alcohol, soap, aloes, and cannabis indica of a low grade.

"The beer-drinker is always subject to Bright's disease with and without dropsy, and the chronic beer-drinker is a most pitiable object, and made up of bloat and acne rosacea. No conscientious physician should recommend beer."

Arsenical Wall-Papers in Malarious Regions.

In a recent number of the *Gentleman's Magazine*, Mr. Matthieu Williams suggests the use of the generally-regarded injurious arsenical wall-papers in malarious regions. He says: "I maintain that the hotels in the vicinity of the Campagna, the Pontine Marshes, the Maremma, and other malarious regions of Italy, should be papered throughout with brilliant green arsenical papers, and painted with Scheele's green or other arsenical pigment. The same should be done in New Orleans, and all other such places, for the special benefit of (non-acclimatized) visitors." Perhaps hotel proprietors in malarious regions will wish to hear from other sanitary authorities before adopting the novel suggestion.

Dr. Ramsey's Revolver.

Officer George F. Alstadt, of the Pittsburgh police force, has in his possession a revolver which he thinks may have been stolen from its owner, and desires it to be returned if so. It has the following inscription on the metal on front of handle: "Presented to J. Allen Ramsey, M. D., Surgeon 3d Brigade P. V., by his friends.

Items.

—In the *Brit. Med. Jour.*, Dr. George J. Robertson reports a case of extra-uterine pregnancy, and death of the fœtus at four months, intestinal obstruction from pressure, removal of the fœtus by perineal section, and recovery.

—"Have you heard about Blicher?" "No; what's up now?" "They say he's struck natural gas." "Natural gas! Well, I should think so! He's married a widow who talked three men to death before she was forty."

—Dr. P. Marie, one of the physicians to La Salpetriere Hospital in Paris, says in *Le Progres Medical* that ovarian tenderness is frequently met with in chorea minor, and that it is always situated on the side where the movements first showed themselves.

—A New York physician boasted at dinner that he had no fear of trichinæ, because he cured his own hams. "Well," said a lady guest to him, "I think it would be preferable to be your ham than your patient." The doctor fled to Germany.

—Vogel relates the following in his "Diseases of Children": "I once treated an American lady, who still suckled her son, who was two and a half years old, till one morning, when the strongly-developed, robust child was called to be nursed, he very kindly replied: 'I thank you, dear mamma, the nursing is too tedious for me.'"

—The late Professor Laycock was very fond of drawing attention to hereditary peculiarities. One time, in the middle of a lengthened exposition of the features in common of a mother and child, the woman, perhaps a little uneasy, stopped him, saying, "A weel! I'm no the bairn's mither, I'm just his step-mither."

—An English judge strongly affirms that a medical man should not leave a woman in labor, except his life be in peril; that if he desires to abandon the case he must tell the friends to get another doctor, and remain with the woman till the doctor arrives. If he does otherwise than this, he will be responsible before the law for such injury as may happen to the woman from want of medical attendance.

—According to Dovodtchikoff, naphthalin is an invaluable dressing for ulcers. He writes in the *Vrach*, that it is inexpensive and easily used, therefore of great service to poor people. After its application, granulations quickly appear, and cicatrization is rapid; its antiseptic properties serve to remove false membranes and bad odors. Naph-

thalin dressings do not irritate ulcers, nor produce any pain, and patients can continue their avocations without any difficulty.

OBITUARY NOTICE.

AUSTIN FLINT, SR., M. D.

The great leader of the profession in this country, the elder Dr. Flint, died suddenly of apoplexy in New York city on Saturday, March 13. Dr. Flint was born in Massachusetts October 20, 1812, and had therefore completed his seventy-third year; he had attained a ripe old age, he had lived a life full of honor and usefulness. His ancestors emigrated to this country in 1638, and settled in Concord, Mass. His grandfather, after whom he was named, was a physician, who died at Leicester, Mass., in 1850, having passed the age of ninety years. The dead physician, after pursuing his studies at Amherst and Cambridge for three years, entered the Medical Department of Harvard College, and pursuing a full course, received his degree of M. D. from that institution in 1833. In 1836 he established himself in practice in Buffalo, and in 1844 was appointed to the chair of the Institutes and Practice of Medicine in the Rush Medical College of Chicago; but this position he relinquished at the end of a year. For ten years from 1846, he was the able editor of the *Buffalo Medical Journal*. In 1847, he was one of the founders of the Buffalo Medical College, in which, until 1852, he was Professor of the Principles and Practice of Medicine and of Clinical Medicine. In 1852, he became Professor of the same branch in the University of Louisville, where he remained until 1856, when he returned to the Buffalo College as Professor of Pathology and Clinical Medicine. From 1858 to 1861 he was Professor of Clinical Medicine in the Medical School of New Orleans in the winters, having in the meanwhile (in 1859) removed from Buffalo to New York city, where he passed the remainder of his life. In 1861 he was appointed Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College. In 1872 he was elected President of the New York Academy of Medicine. As an author, his contributions are well known to the profession. He has been President of the American Medical Association, and was to have been the President of the International Medical Congress for 1887. He contemplated visiting England this summer to read the address in the section of medicine before the British Medical Association.